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ORIGINAL ARTICLES.

THE INFLUENCE OF SANITATION UPON OBSTETRICAL AND GYNECOLOGICAL SURGERY.

Read in the Section of State Medicine at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

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It goes without saying that the age in which we live is one of immense progress. In whichever direction the eye is turned in the scientific field the evidences of an intelligent and untiring labor are presented. Contrast the status of scientific knowledge to-day with that of half a century ago and the immense gain in beneficent information and in useful fact is made apparent. In no department of scientific work is this gain more marked than in the domain of preventive medicine. Not only have the manifold causes of diseases been diligently and assiduously sought for and in numerous instances found, but astonishing progress has been made in the direction of preventing the spread of contagious influences and in modifying the effects of such influences when in actual force. The science of Sanitary Medicine has been revolutionized and reconstructed on a foundation of established principles. To the growth and evolution of these principles the entire practice of medicine and surgery now pays tribute. To the application of the principles of sanitation to professional work can be traced the largest results which have ever flown from a scientific doctrine.

It is not the purpose of this paper to attempt to trace the history of this progress in sanitary science, except in so far as it bears upon the special subject under discussion, viz., "The Influence of Sanitation upon Obstetrical and Gynecological Surgery." The object in view is to show the very important and beneficent effects which have resulted in obstetrical and gynecological surgery from the recognition and adoption of the principles of sanitary science, and how the further acceptance and enforcement of these principles will bring a larger measure of results than have as yet been witnessed. The scope of this subject will not admit of its brief discussion if the element of statistics is introduced at any length. An attempt will be made to treat the subject in as condensed a form as is possible, and to regard in a large and general way the lesson which may be learned from a philosophic view of the important facts under consideration.

Going back to the earliest history of medicine it will be observed that Hippocrates directed attention to the influence of air, water, diet, and clothing as factors in the causation of disease. From a general standpoint sanitation is as old as the records of the human race. In a more particular and special sense the growth of the important idea of sanitation is of very modern and recent date. The full influence of this idea has been made apparent in its best sense only within the past forty years. The birth of the modern principles of sanitation took place when Semmelweis demonstrated the influence of cadaveric poison upon the lying-in woman. The principle once established that the diseases of the puerperium originated in external influences the entire groundwork of the science of sanitation, as applied to obstetrical surgery, was relaid, and upon this foundation has been built the present superstructure. The results which have followed the recognition and observance of an external influence as an etiological factor have been so wide-reaching that the vast majority of diseased conditions are now referred to specific influences of external origin. The discovery of microörganisms and the establishment of the relation which they sustain to pathological states led the way to the successful study of specific influences. The essential principle in the causation and extension of disease was in this way traced to a specific factor, a *materies morbi* of recognizable aspect, of given demeanor, and of ascertainable character. Before the day of the microbe—when sanitary science was vaguely striking at imaginary etiological influences, at supposible miasms, at contagious principles lurking in the air, in clothing, in water, and in unseen places—the progress of sanitation was made only along lines of indirect observation. However earnestly attempts were made to destroy or intercept the march of the infectious and contagious principle such attempts were often futile in aim and reach in virtue of the

fact that the principle was an undetermined character and quantity, obedient to no established law and controllable by no power then possessed. Is it surprising that sanitary science was so long in rising to its present plane of usefulness to the animal world when one considers the difficulties which hampered its environment? Nor is it less surprising to witness the progress it has made since the time of Semmelweis when a new impetus was given to its growth by the discovery of the principle of septic origin of disease by the direct introduction of a septic process. In order that the influence of sanitation upon obstetric surgery may be shown in its most striking and truthful aspect I shall present the statistics of puerperal mortality of the present day in comparison with those prior to and at the time of Semmelweis.

That the ancients were familiar with the diseases of the puerperium, grouped under the generic term of puerperal fever, there can be little doubt. It is more than probable that the lying-in woman from the earliest period of human society has been subjected to its ravages. References to epidemics of puerperal fever are not frequent until after the latter half of the seventeenth century (about the year 1664). About this time and during the next hundred years it made inroads upon the lying-in hospitals in Europe to an apalling extent. It prevailed in London during the years 1760, 1768 and 1770 to such a degree that nearly every woman confined in lying-in hospitals perished. A similar epidemic occurred in Edinburgh Infirmary in 1773 and it is stated that almost every woman as soon as delivered was seized with the disease and "all of them perished." In a number of different years it prevailed in the Maison d' Accouchement of Paris to such an extent that one woman out of three delivered died. In the lying-in hospital of Vienna in 1823, 19 per cent. of the women delivered in the institution perished, and in 1842 the mortality was as high as 16 per cent. The epidemic waves of puerperal fever which swept over Europe are said to have destroyed nearly as many lives as small-pox and cholera. In our own country we have not been without such epidemics, but in consequence of the fact that the lying-in institutions in America are of comparatively recent date statistics have not accumulated to the same extent as in Europe. Lusk estimates the mortality from puerperal fever in New York City from 1868 to 1875 as 1-146, The mortality from child bed in the same city during the latter year reached the total of 420, from which it is fair to assume a large percentage as a result of diseases of the puerperium. During the year 1872, in the same city, the mortality reached a total of 502, the larger percentage being due to increase in cases of metria, those from ordinary accidents remaining nearly the same as in the previous year. During this year epidemic influences were notably present and the influence of atmospheric conditions laden most probably with a larger force of organisms may be assumed as a direct etiological factor in the mortality rate. Contrast the foregoing statistics with those of a more recent date which show the influence of sanitation. Goodell has stated that the mortality at the Preston Retreat in 756 cases was only two from septic disease, and Dr. Price, the present physician in charge of this same instution, has shown a still further reduction in this mortality from the enforcement of every known sanitary appliance. Winckel reports the deaths from metria in the lying-in institution in Dresden as 1.8 per cent., having fallen from 5 per cent. the previous year as a result of the enforcement of rigid measures for the prevention of disease. But take a more striking comparison. The mortality in the lying-in hospital of Vienna, which in 1823 reached 19 per cent., has fallen to the present rate of less than the half of 1 per cent. Take now the statistics of puerperal mortality in private practice as compared with that of maternity hospitals and the influence of sanitation is even more marked. In 1858 Tarnier showed that the mortality in the Paris Maternity was one in 19 whilst that in the city at large was only 1 in 322. In 1866 Lefort showed from his studies that in hospitals and in maternities the mortality was 1 in 29 whilst in cities it was one in 212. He adduced these figures to demonstrate the influence of contagion through the effects of greater crowding. The recognition of this fact led to the adoption of such methods of reform that results have flown in direct proportion to the enforcement of precautionary measures. Here the idea of sanitation asserted itself. The reforms instituted aimed first to purify the surroundings of the lying-in woman by a freer supply of pure air and less crowding and, second, to prevent contagious influences from gaining access through the agency of those in attendance on the puerpera. See the results of the enforcement of this idea by the statistics of Lariboisiére Hospital. In 1855, 467 labors took place in this institution with a total death from puerperal causes of 39 cases, 8.4 per cent. During the year 1878, 890 cases of labor took place with a mortality of 10 from puerperal causes, or less than .9 per cent. In the Marbourg Obstetric Clinic for the year ending March 31st, 1888, 308 women were confined with no deaths. In Leopold's clinic during the year ending May 1st, 1887, 1,403 women were delivered without a death from sepsis. In our own country Garrigues has shown from the records of the New York Maternity Hospital that from 1875 to 1886 the mortality from puerperal disease had fallen from 2.63 per cent. to .98 per cent. In whichever direction the search is made for statistics it will be observed that the lowering of the death-rate

during the puerperium from septic processes has been in direct ratio to the acceptance and enforcement of the principles of sanitation. So marked has been this fact and so evident are the results of strict sanitation upon the destiny of the lying-in woman that in one or two European countries (Holland and Belgium I believe) the enforcement of strict sanitation upon the part of those engaged in midwifery practice is made a legal enactment with attached penalty for its violation.

The rapid growth of professional and public sentiment in support of thorough sanitation before, during and after confinement has done more to reduce puerperal mortality than all other agencies previously employed. But the influence of sanitation upon the welfare of the lying-in woman, as pronounced as it has been, only expresses half the debt of womankind to the principles which sanitation embodies. Authorities about agree that whilst labor is a physiological process it leaves woman in a pathological state and that she is indirectly exposed by virtue of the traumatism she receives to all the sequelæ of a surgical procedure. There seems then no rule applicable to the details of a surgical operation which should not be enforced in the management of labor. The two procedures—one natural the other induced—occupy analagous positions and respond equally well to the same principles of sanitation. So we find, as in obstetric surgery the sanitary idea has conquered a mission of widest influence and usefulness, so in gynecic surgery the sanitary principle has gained a triumph no less astonishing and beneficent. Through sanitation the abdomen has become the tramping ground for every manner of incursion. The peritoneum, at one time the *bête noir* of the laparotomist, now receives his friendly touches with kindly behavior and complacent composure. Experience has taught that the sanitary principle rigidly enforced is the *sine qua non* to success in abdominal work. The abdominal surgeon who dares to ignore the principles embodied in the teachings of preventive medicine does so in the face of all that is profitable in experience and commanding in authority. Whilst eminent authorities may differ as to the necessity for antisepticism, so-called, none dispute the principles of which asepsis is the central idea and cleanliness the watchword.

The influence of the aseptic idea upon abdominal surgery has been shown in such numerous instances that a statistical statement may seem out of place in this connection. I cannot refrain from calling attention, however, in this paper to the astonishing results presented by the work of Mr. Lawson Tait and of Dr. Bantock, both of whom are noted for the thorough attention given to the details of operative work and to the principles of sanitation. Mr. Tait has been able to record a total of 146 ovariotomies without a single death, whilst Dr. Bantock's record shows 86 successful cases in consecutive order. It has fallen to Mr. Tait's honor to record a total of 1,000 abdominal sections with the low mortality rate of 5.3 per cent. in contrast with the work of a great predecessor in this field whose first 1,000 laparotomies gave a mortality of 25 per cent. To what special factor can this difference in results be attributed? Apart from any special fitness or training upon the part of the individual operator the knowledge of a sanitary law will assert its influence in the decision reached. If we move faster than those who have preceded us, is it not fair to assume that this progress is largely due to the fact that we have caught hold of progressive ideas and principles and have been ready to accept and enforce such principles as the embodiment of a broad and rational system of scientific development?

Whilst then it will appear from the foregoing considerations that it has been the distinguished mission of sanitary science to reduce puerperal mortality to its present low percentage it is a most striking fact that sanitary science largely owes its present influence to the observations made during the puerperium and to the deductions made from such observations. It may be profitable to inquire how these mutual influences have been brought about. An examination of the status of sanitary science prior to the acceptance of the doctrine of specific infection will show that the laws of sanitation were so general in their application and so indefinite in their aim that general results only followed their enforcement. So long as the causation of disease was involved in obscurity just so long were the means of arresting or destroying causative influences imperfect in design and in effect. An imperfect conception of an etiological factor implied an imperfect application of the methods of combatting causative influences. Our present knowledge of the behavior of contagious and infectious miasms and our knowledge of the means of arresting or of preventing their influence is based upon a knowledge of their individual characteristics, mode of development, manner of action and form of expression. This knowledge of cause and of effect has made more reliable those methods of sanitation which deal with causative influences. The perfection of the principles of sanitary science rests essentially upon such knowledge. The Ancients knew thousands of years ago that foul air and impure water were causes of disease. This knowledge is instinctive in many forms of animal life. Yet whilst this was true human society profited but little by such knowledge until it was further shown that epidemics and pestilential diseases were likewise referable to atmospheric influences. But sanitary science still labored in the dark when it merely dealt with impure air, food and water. Its principles were only in part known, and only partially un-

derstood; it dealt in the most rudimentary way with the origin and spread of contagion and infection. The evolution of the science of preventive medicine has only moved from this crude domain of general principles to a plane of high art and specialized function since it entered upon the study of the etiology of disease from a standpoint of microbiology. The belief in a poison germ first came and then the methods of preventing the development and spread of this germ followed, but this idea, as great as it was in advance of former ideas, was not sufficient. It was not until the microscope revealed a world of organisms at peace and at war with the animal economy, many rendering important service to animal life, others destroying animal life in manifold ways, that the study, arrangement and classification of microörganisms, the discovery of their influence upon fermentation, putrefaction and as carriers of disease, the recognition of their presence in zymotic and infectious diseases were successfully worked out. These studies in microbiology led to such an understanding of the nature and cause of disease as to bring into successful operation approved methods of arresting and preventing diseased processes. The progress of scientific enquiry has largely, if not conclusively, confirmed the opinion that as all ferments are living organisms so all contagia are allied living organisms. The special organism in its causal relation to a special disease has been determined in too many instances to admit of doubt as to the existence of specific bacteria as a special factor in the causation and extension of diseased processes. From the date of the discovery of certain rodlets in the blood of animals suffering from splenic fever by Pollender in 1849 down to the present time the causal relation between bacteria and disease has been strengthened and confirmed by the most careful investigations. The discovery of the bacterium of relapsing fever by Obermeyer followed in 1873. The discovery of the bacillus tuberculosis by Koch in 1882 was a most important advance in establishing the truth of the germ theory. Next came the important observation of Koch in 1883 on the comma bacillus of cholera. Discovery of one microbe after another has followed until it is now well affirmed that there is a microörganism of syphilis, of gonorrhœa, of malaria, of whooping-cough and pneumonia, of typhoid fever, diphtheria and erysipelas, of septicemia, pyemia and tetanus. The doctrine of spontaneous generation, no longer tenable, gives place to the germ theory that no life is evolved save from a living germ. The importance of this principle—now accepted by the most reliable observers as an established fact—has been affirmed by the statistics of modern medicine and surgery in no mistakable language. Sanitary science aiding with its principles of cleanliness, of disinfection, of asepticism has lifted the practice of medicine and surgery to their present plane of successful combat with microörganisms. Medicine and surgery on the other hand by the acceptance of the principles of sanitation have strengthened the influence of the sanitary idea until it has been broadened into a science of modern microbiology, preventive medicine and aseptic surgery.

I have now attempted to show that the discovery of an external influence of septic origin was the first step in the direction of arresting pathological states dependent upon contagious and infectious conditions. If diseases originate from disease germs, whether manufactured within or external to the human economy, the prevention and cure of disease must be undertaken from a standpoint which aims to combat such germs. It has been shown that when once the germ has gained access to the human economy its growth is so favored by conditions that a combat with its influence must be waged at a great disadvantage. Those agencies which destroy bacteria also destroy human tissues and it is an unequal contest which science wages with germicides against bacteria safely housed in the fluids and tissues of the body. Science has yet no specific germ destroyer of safe internal administration. Quite evident is it that the great aim of science is in the direction of preventive medicine which seeks to arrest all forms of bacterial development *in embryone* as it were, and thus intercept their disastrous influence as promoters of disease. The conditions under which microörganisms develop and multiply, the modes by which they are carried from place to place, the pernicious influence they are capable of establishing are now pretty well understood. Through the agency of air, water, food and clothing, through moisture, warmth and all uncleanliness, through putrefaction, stench and imperfect drainage the various organisms find ready avenues of travel and all the conditions necessary to their culture and activity. Sanitary science has discovered these facts, aseptic medicine and surgery have confirmed them. The general recognition of these facts alone is now needed to secure the immense results which are destined to follow the acceptance and enforcement of the sanitary principles in their integrity. Just so soon as the entire profession of medicine is brought to a position from which all professional work is made to conform to the universal law of sanitation, from that moment will the statistics of mortality from all preventable diseases reach the lowest possible limit. But the general enforcement and acceptance of the laws of sanitation by the profession of medicine are wholly inadequate to the purpose. The public mind must be educated up to the full understanding of the important influence of strict sanitation upon the public health. This can only be done through intelligent and liberal legislation, through

wise and well-trained public officials, through efficient health organizations, and lastly through the intelligent coöperation of the citizen. Is it a utopian scheme to hope for such intelligent action and large acceptance of the principles of sanitation as are here outlined? Let those answer who have witnessed the progress of preventive medicine within the last quarter of a century. So long as human society is cradled in the lap of ignorance and folly, just so long will its growth be hampered by its surroundings, but as society rises in intelligence and into the liberty of a rational and enlightened conception of its wants and necessities we may expect it to accept and adopt those higher principles of social government which will perpetuate its existence in the most perfect form. The conclusions which may be drawn from the foregoing general consideration may be summed up in brief as follows:

1st. The doctrine that diseases of the puerperium and the pathogenic processes following surgical procedures are of bacterial origin is now universally accepted by scientific authorities. This opinion asserts the idea that diseases are of septic origin, that they are introduced from external influences and do not originate *de novo* in a given case. This view annuls the doctrine of spontaneous development of microörganisms and traces their origin to antecedent conditions.

2nd. The acceptance of the doctrine of external origin of microörganisms implies the necessity of preventing their cultivation and propagation before they have gained access to the human economy.

3rd. The science of sanitation has for its mission the destruction of microörganisms and the prevention of all pernicious influences which would arise from their propogation.

4th. The principles of sanitation are entitled to the utmost consideration and enforcement in all methods of medical and surgical work. These principles insist upon the employment of every known means of preventing and of arresting diseased processes dependent upon bacteria by the removal of all conditions which favor the development and conveyance of such bacteria.

5th. The medical profession is now fully cognizant of the various agencies through which diseased germs originate and the numerous channels through which they are introduced into the human economy. It therefore becomes the solemn duty of the medical profession to give full support to the teachings and principles of preventive medicine and to advocate the fullest acceptance of such teachings and principles by the general public through regularly organized channels of public sanitation and through appeals to intelligent citizenship.

ONE YEAR OF ACETANILIDE IN PEDIATRIC PRACTICE.

Read in the Section of Diseases of Children at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

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Carbolic acid and its allies, all products of coal-tar, have been demonstrated to be of great value.

Of this class none, in my judgment, are superior to acetanilide. This substance was prepared as early as 1853 by Gerhardt, by the action of aniline upon acetychloride, or anhydrous acetic acid, but up to a year or so ago it was not known to possess valuable medicinal properties.

The discoverers of the fact—Cohn and Hepp—that the drug possessed excellent therapeutical qualities gave it a new name, supposed to be more appropriate for use in prescribing, namely, "antifebrin," which name is protected by patent laws, and only the authorized makers and agents can use this term.

"Acetanilide" is in every respect identical with antifebrin, but possesses this advantage, that it is cheaper, and in specifying it we do not cater to the patent medicine trade. It forms colorless, shining plates, melting at 233.6° F., boiling at 563° F. It is almost tasteless, but after a time a slight burning sensation is produced upon the tongue. It is somewhat insoluble in cold water, more readily soluble in hot water; very freely so in alcohol or alcoholic solutions.

It possesses neither basic nor acid properties, and is not readily attacked by most reagents.

In general, my experience has convinced me that acetanilide is about three times as effective as antipyrin in promptness, duration, and extent of action, and is certainly less depressing and correspondingly dangerous. I might readily pay tribute to the value of the drug in adult practice for the relief of violent neuralgias, facial and sciatic; high grade fevers, typhoid and malarial; the discomforts of gout and rheumatism—but this is not the object of this paper.

It is my purpose to present the epitome of one year's experience of the use of acetanilide in the treatment of diseases of children. This experience is a complete endorsement of the announcement of Widowitz in favor of its peculiarly safe and steady action in children up to 4 years of age, or twice or thrice the amount in those older.

When the drug is given for its analgesic effect, where the temperature is normal, it requires eight times the amount to secure the fall of one degree of temperature that it does when fever is present.

At the last meeting of the British Medical Association, at Glasgow, Scotland, Dr. J. Theodore Cash made a most elaborate report in the Section of Pharmacology and Therapeutics upon acetanilide and its kindred. He stated that when it is

given in doses of not more than ¾ gr. for every 2 lbs. of weight of the individual it is free from danger; in doses of ten times that amount it is toxic, causing great fall of temperature, twitching of the muscles, and death. The action upon the spinal cord is decided, its reflex irritability being greatly impaired. Ultimately anæsthesia is produced.[1]

The irritability of motor nerves is greatly reduced or even suspended by the action of acetanilide; muscular irritability and contractility are markedly diminished. Cash states that large doses produce a marked change in the blood, methæmoglobin becoming abundant, while oxyhæmoglobin is greatly reduced. He states that it is questionable in how far the presence of an impurity may lead to this result and to the accompanying cyanosis, which was observed by Germain Sée and others.

In some instances good-sized doses have produced marked cyanosis, which is the one disagreeable feature of the drug, but this has been exceptional; but even when it occurs many observers have given evidence that it is not important.

In the majority of instances I have furnished the drug myself, as is my custom when administering any new remedy (where I desire to be sure of its being reliable, and to limit and control the amount taken). When prescribing the drug, by specifying that furnished by Lehn & Fink, of New York, I have rarely had the cyanosis result.

In administering the drug to children I have in many instances taken the 5 gr. tablets of Hazard & Hazard and triturated them with sugar; being tasteless, the administration is easy when combined with the sugar, and the dose can be regulated as desired. If depression be present, small quantities of brandy may accompany it.

I have found the following formula agreeable and desirable:

℞.	Acetanilide (Lehn & Fink)	30 grs.
	Alcohol	3 drachms.
	Glycerine	2 "
	Aquæ cinnamon	3 "
	Syr. tolu	1 oz.

M. Sig. One or two teaspoonfuls every two or three hours, as may be desired.

Although it is probable that the drug diminishes the number of the red blood corpuscles, yet it requires a long administration of large doses to produce a condition of anæmia, and even if this should result it is very amenable to treatment.

Some of the observers have stated that of the various pyretic affections which would appear to indicate the administration of acetanilide, but which derive the least benefit from it, may be mentioned

SCARLET FEVER.

My experience does not bear out this statement. A record of fifty cases of scarlet fever wherein the temperature was controlled pleasantly and satisfactorily has been made during the year. I will not weary you with the presentment of the dreary details of all the cases, but furnish a typical one, and present conclusions based upon the complete record.

I. C., æt. 5 years, taken suddenly with vomiting and high fever. Examination revealed a temperature of 104°, pulse 120, sore throat, headache, and general discomfort.

Administered appropriate remedies to allay irritability of throat and stomach, and to control temperature gave 2½ grs. of acetanilide every two hours, to be given regularly if awake.

Second visit made at end of twelve hours, and during interval 10 grs. of remedy had been taken. Temperature was 101°, patient had passed a comfortable night, a well pronounced rash was present, and a clear case of scarlet fever was announced. By the use of the acetanilide the temperature was kept in the neighborhood of 100°. All the symptoms were rendered more mild.

The uniform result in all the cases justified the conclusion that in acetanilide we have a remedy whereby we can surely and safely modify and soften the asperities of scarlet fever.

It is of course a fact admitted by all that scarlet fever has a definite career to run. No one should think of aborting a case of scarlet fever any more than they would of healing a broken bone in a shorter time than a month or six weeks, but we should realize that we can lessen the danger to our patient by guarding him against high temperature or the continuance of a fever which "melts down the body tissues and endangers life from the accumulation of the products of nitrogenized waste in the blood."

MEASLES.

I present the following as typical of a series of cases:

M. G., a female æt. 10, a spoiled child of luxury in a wealthy family, all the other children of which were full grown. Taken ill December 6, 1888. Sent for physician who pronounced the case one of measles, and left instructions that plenty of hot drinks be given and the room kept dark until the case had terminated. After two days and nights of restless, burning agony, no sleep, constant coughing, and the child in a frenzy of discomfort, I was summoned. I found the little girl tossing from side to side almost delirious, a most terrible burning itching present, coughing incessantly, a burning thirst, to relieve which only hot drinks were being given. Pulse 130, temperature 105°.

At once ordered cool drinks and a 5 gr. dose of acetanilide, to be repeated every two hours if awake. At next visit in the morning found that the little girl had passed a comfortable night, 10 grs. of remedy had been taken, pulse was 90 and

[1] Therapeutic Gazette.

temperature 100°, almost no disposition to cough. Itching of skin completely subsided. Two or three days of treatment terminated the case satisfactorily.

Forty-six recorded cases of measles wherein the drug was used and a large number not recorded, corroborative, present arguments to justify the opinion that acetanilide serves admirably to reduce the high temperature, tranquilize the nervous system, and allay the irritation of skin and mucous membranes present in measles.

CONGESTIVE FEVERS.

Twenty cases of congestive form of fever, possibly of malarial origin, with temperature ranging from 105° to 107°, accompanied by convulsions, successfully treated, wherein acetanilide played a most important part, could be presented, but one case in detail will serve to illustrate the whole set.

M. B., æt. 2 years, taken May 10, 1889, with severe convulsions. Physician summoned, found child in convulsions and receiving the stereotyped hot bath. Examination revealed a pulse of 140 and a temperature of 106°, a constipated condition of bowels. At once he gave an emetic and an injection, with a view to opening the lower bowel, and a calomel purge. Temperature ranged from 103° to 106° for five days, at end of which time I saw the case in consultation with the attending physician. The temperature was 104° at noon, pulse 130, delirium present, bowels were freely open. Aconite and quinine, together with calomel, had been freely given, also bromides to produce rest. The conditions strongly pointed towards meningitis.

I suggested a continuance of the calomel in infinitesimal doses ($\frac{1}{20}$ gr.) every few hours, also 5 grs. of acetanilide at once and to be followed by 2½ grs. every four hours and oftener if necessary to keep the temperature at 100°. If depression were present at any time, teaspoonful doses of brandy every two or three hours were to be given.

At next visit, made at noon the following day, it was found that 5 grs. every four hours had been necessary to keep temperature at 100°. Pulse was 90 and good volume; a few teaspoonfuls of brandy had been given. Delirium had subsided and child had rested fairly well. A chill at midnight, followed by a disposition towards higher temperature, suggested malaria, which had previously been suspected as being the *casus belli*, and pointed to the necessity of quinine, which was ordered in 5 gr. doses in mucilage per rectum every four hours.

On the following day the patient was in a better condition; the chill had not occurred as on the previous night. A continuance of the treatment, varied according to the conditions, left the patient convalescent at the end of ten days.

A very important factor in this case was, I think, the acetanilide.

In fevers the administration of the drug secures a slowing of the respiration and the pulse; arterial tension rises, diuresis and diaphoresis occur, pain is relieved, and sleep usually ensues.

The calming effect upon the nerve centres is of great value in these conditions, I think.

We know that sweating is not common in the fever of children. William Pasteur has suggested that the pungence of skin which is often met with may be partly due to this peculiarity.

Dry skin, contracted cutaneous vessels, conditions which tend to prevent a rapid loss of heat, favor elevated temperatures and are elements of danger to the child.

A brief quotation from Pasteur's excellent article on "Fever" in Keating's Cyclopædia, will be pardoned. He says: "The nature of the relations of the central nervous system to thermogenesis and thermolysis is still very imperfectly understood. Our knowledge in this direction is chiefly based upon experimentation on animals. Careful experiments have demonstrated the presence at the anterior part of the caudate nucleus, near its median convexity, of a tract which, whenever it is stimulated by puncture with a fine needle or by an electric current, gives rise to an increase of the body temperature, which persists for some time and is attended by an increase of the amount of the oxygen absorbed and of the carbonic acid given off by the animal. It has been shown by calorimetric experiments that this pyrexia is not due to vaso-motor disturbance, causing retention of heat, but that there is an increase in heat production. At the same time the pulse and respiration rates are raised and the elimination of urea is increased.

"It appears, therefore, that puncture of the caudate nucleus produces in certain animals a pyrexia which possesses all the essential properties of fever regarded as abnormal elevation of temperature. The value of this experiment in support of the neurotic origin of fever can hardly be overestimated. Some valuable evidence is also forthcoming on the clinical side. In this connection it will suffice to recall the fact that there are on record well attested cases of cerebral tumor, pontine hæmorrhage, softening hæmorrhage in or about the basal ganglia, injuries of the spinal cord, tumors of the spinal meninges, and others, in which very high temperatures have been observed—temperatures for which no other cause was discoverable than the nervous lesion with which the patient was affected."

No one can doubt that there is a close relationship existing between the nervous system and heat production and heat regulation.

In fact, it is practically accepted that "there exist in the body chemical processes, resulting chiefly in the production of heat; that these processes are under direct control of the nervous system and possibly of special thermal nerves;

and lastly, that there are regions in the central nervous system which are in some way connected with these nerves, and through them control the chemical processes resulting in heat production."

The more we study the fever problem the stronger the conviction that a large part of our treatment should be directed towards tranquilizing the nervous system and aiding elimination, not forgetting nutrition.

In acetanilide we have a remedy, I think, which reduces high temperature by its beneficial effects upon the nervous system.

In this drug, carefully and judiciously used in conjunction or alternating with the cooling bath or the wet sheet, we have the sheet-anchor of safety to our fever patients.

WHOOPING-COUGH.

It is surprising that the opinion obtains so freely among the people that this disease is a trifling one and not much amenable to treatment.

We do not need to refer to the mortality records of England and Wales, which are so perfectly kept, and which prove that whooping-cough ranks third in the fatal diseases of infancy in England.

The complications which may accompany the disease are the cause of its fatality. Whether the microörganism of pertussis described by Burger, of Bonn, be established or not, there can be no doubt of the fact that the disease is caused by a special germ.

In our treatment the most we can do probably, as yet, is to guard our patients from the possible complications.

After treating fifty cases of whooping-cough with acetanilide, I am convinced we have a valuable remedy for the disease. Given in doses of from 2½ to 5 grs. every two to four hours, according to age, we can materially mitigate the severity of the paroxysms and reduce their frequency. By the judicious administration of the remedy, coupled with proper attention to diet, clothing and an open state of the alimentary canal, we rob the disease of three-fourths of its discomforts, terrors and dangers.

CONVULSIONS.

In November, 1888, in a paper read to the McDowell Medical Society, of Kentucky, on "Infantile Convulsions," I testified as follows: "In acetanilide I am sure we have an excellent remedy for the relief and prevention of convulsions. Clinical experience for one year justifies the conclusion. In confirmation of my own experience of its value in the convulsive diseases, I note the fact that Dr. H. H. Moyer, in the London *Medical Record* of August 20, 1888, reports favorably on its use in epilepsy, in 5 gr. doses three times daily."

Seven months' additional clinical experience endorses the position taken above.

CHOREA.

Three cases of chorea in girls ranging from 7 to 14 years of age have been more benefited by the acetanilide—in doses of 5 grs. from three to four times daily, as indicated, coupled with proper nutrition and tonics—than by any other plan of treatment. The recovery was more prompt.

After more than eighteen months' experience in the use of acetanilide for many of the febrile, spasmodic, and painful disturbances of childhood—a record of its use upon 600 children, together with at least 500 unrecorded cases, kept for purpose of comparison with past experiences with other drugs for similar conditions—I feel justified in arriving at the following conclusions:

1. Acetanilide, carefully guarded and properly used, is a safe and reliable remedy in the diseases of infancy and childhood.

2. Whether used for the antipyretic, analgesic, or sedative effect, it is preferable to antipyrin in that the result secured is of longer continuance and the depression is not so great.

3. The cyanosis which sometimes results from its liberal use is not uniform, and, while it is not an agreeable feature, my experience corroborates that of other observers to the effect that it soon passes off and is not accompanied by danger.

4. It is not desirable, in reducing temperature, no matter what means be employed, to use them in excess to the extent of securing sudden and great reduction. Especially is it preferable, in using acetanilide for antipyretic purposes, to give it in medium doses to the extent of keeping the temperature down to a reasonable point—in the neighborhood of 100° F. It is better to give small doses and repeat them more frequently, rather than large ones at long intervals.

5. It is of great value as a controller of temperature in the various fevers, whether they be caused by the typhoid germ, malaria, or the exanthemata.

6. It serves almost as a specific in whooping-cough, not in aborting the disease, as it has a definite course to run, but in mitigating the discomforts and controlling the paroxysms of the same.

7. Acetanilide, while of great value and surely safer than antipyrin, is no exception to the rule that obtains with all drugs. It should be handled carefully, administered judiciously, and under no circumstances should the public be educated in its use.

The time has come for the profession to call a halt and endeavor to check the reckless use of medicines upon the part of the people. The secular press, in disseminating information regarding the action of drugs, gleaned from medical sources, is to a large degree responsible for the drugging habits of the people; but the medical profession is not blameless in the matter, in that many physicians verbally advise the pur-

chase of many drugs by their patients, and carelessly and thoughtlessly impress them with their harmlessness.

8. Medicines, which are nothing more than the tools by which the physician hopes to accomplish certain ends, should no more be left in the hands of an uninformed lay public, to use at their pleasure, than should the equipments of a surgeon's office or the accoutrements of a standing army (all intended, if properly used, as a protection to the lives of the citizens) be recklessly placed in the hands of children, or those unskilled in their use.

If the members of our sister profession of pharmacy do not become imbued with the above thought, and act upon it, physicians may be forced to supply themselves with a part, at least, of the medicines needful to cope with disease, feeling that the attending inconvenience will be more than compensated by a knowledge of the fact that they will have a more definite control over the drugs administered to their patients.

THE AMETROPIÆ AND THEIR RELATION TO INSUFFICIENCIES OF THE RECTI MUSCLES.

Read by Title in the Section of Ophthalmology, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY JOHN W. WRIGHT, M.D.,
OF COLUMBUS, O.

The normal functions of the orbital muscles, when the eye is considered as a monocular organ only, are complicated; when we study their actions in connection with binocular vision, their offices appear confused in the extreme; but when, in addition, there exists an abnormal condition in the action of one or more of these muscles, then we have a perplexing skein to untangle. Such has the subject of insufficiencies of the orbital muscles proven itself to be.

In seeking a remedy for an affection, we do so more intelligently by first searching for the underlying condition of which the symptoms are but the declaration. Hence in asthenopia of the orbital muscles, as in all other affections, we would, as far as possible, trace all symptoms back along the line of causation to their ultimate origin. We are thus necessitated to consider some of the most noticeable and common affections of the ocular muscles, whose conditions are attributed to refractive abnormalities.

For the purpose of being clearly comprehensible, the subject will be discussed in the following order:

1. Does an error of refraction contribute in any manner to muscular asthenopia?

2. What is the *modus operandi* of the impairment of the function of the ocular muscles in ametropia?

3. Will rendering the eye emmetropic contribute in restoring the weakened muscle to its normal condition?

The only difference between muscular asthenopia and strabismus is that in insufficiency there is temporary inability to maintain binocular vision, while in strabismus the inability is constant. Muscular asthenopia implies an inability to bring both visual lines to bear *constantly* upon one point. In strabismus there is inability to bring both visual lines to bear upon one point *at any time*. In muscular insufficiency, then, the muscle is partially disabled, and is enabled only a part of the time, and then with considerable effort, to perform its functions; while in strabismus it is totally disabled from performing these functions.

We are fully cognizant of the influence of hyperopia and myopia upon the induction and maintenance of convergent and divergent squint.

Observant oculists have noted that from 75 to 85 per cent. of all cases of convergent squint are hyperopic, and in the divergent there is even a larger per cent. of myopia. This alone adequately demonstrates the influence of the ametropiæ upon the functions of the orbital muscles.

As we all well know, it does not follow that all cases of hyperopia and myopia are the subjects of muscular asthenopia, the occupations of the ametropic having much to do in developing this affection.

In order that the eye may deviate from its normal position one of two conditions is necessary: there must be a physical or functional weakness of one muscle, or set of muscles, from which the eye is deflected, or an excessive strength of a muscle or set of muscles, toward which it becomes directed.

In simple hyperopia and myopia how is this accomplished?

2. *The Modus Operandi.*—In hyperopia the patient is compelled to accommodate in order to focus the rays of light upon the retina and make the image more distinct. The greater the degree of hyperopia the more he is compelled to exert his accommodation. Accommodation produces convergence, and the long continued effort of accommodation for this reason makes the convergence permanent.

In a few cases of hyperopia the muscle is not able to stand the long continued strain at convergence, and in order to avoid confusion of images or diplopia, the eye is instinctively turned out and entirely away from its fellow. Thus in hyperopia we occasionally have a divergent squint.

In myopia, as is well known, the patient sees well and often without effort of accommodation, when the object is brought to a very near point; hence, in order to obtain binocular vision, one or both eyes must become abnormally converged. The greater the degree of myopia, the more convergence is necessary in order to maintain binoc-

ular vision. The effort being irksome, and the work too fatiguing to accomplish with both eyes simultaneously, as is especially the case when there is much near work to perform, one eye is disregarded and involuntarily turns out, far enough away from its fellow, that there may be no confusion of images.

In those cases of myopia which are accompanied by convergent squint, the myopia is usually of small degree, and the amount of convergence is not so great but that the internal recti muscles may become orthopædically trained and strengthened by use for near work. In this case it is usual for one eye to become permanently convergent, and able to perform only near work, while it entirely disregards objects for a far point.

As myopia is the most common cause of divergent squint, it is evidently the greatest factor in the cause of insufficiencies of the internal recti muscles.

Myopia is Real or Factitious.—It is real if, when there is complete relaxation of the accommodation, the measurement shows that the retina is situated behind the principal focus. It is *factitious* or *forced* myopia, if the ciliary muscle is cramped in such a manner as to cause the crystalline lens to become so convex that parallel rays of light in passing through, meet before reaching the retina. This condition, as we all know, is frequently acquired in eyes that are emmetropic, and even in small degrees of hyperopia.

So far we have had under consideration the causes whereby the muscles have become *permanently* deranged, so that we may be more thoroughly equipped for the discussion of that other condition of the ocular muscles wherein they become *temporarily* unable to perform their functions.

Now it is a matter of very little importance whether the eye is *really* or *factitiously* myopic, or is hyperopic, the conditions for the production of weak internal recti muscles are exactly the same; that is, in myopia, to recapitulate, the patient must place the object close to the eye in order to obtain binocular vision. The greater the degree of myopia, the more convergence, and the more constant the effort at convergence the more strain on the internal recti muscles; hence the asthenopia.

In hyperopia the patient accommodates to cause the lens to become sufficiently convex to focus the rays of light upon the retina. As accommodation causes convergence, the more he accommodates the more he converges, and the greater the strain upon the internal recti muscles.

We can converge without accommodating, but cannot accommodate without converging. If the patient could accommodate without converging, then there would be no strain upon these muscles, hence no asthenopia in hyperopia.

As heretofore mentioned, the internal recti muscles are most frequently affected with the inability to properly perform their functions; although the external recti muscles are occasionally thus affected. This condition is produced in one of two ways: either, first, by a permanent contraction and increased strength of the internal rectus orthopædically obtained — that is, acquired by moderate and continued effort at convergence; or second, by a spasm or cramp of the internal rectus caused by an over-exertion of that muscle In either case the result is the same; the external rectus is weakened by the long continued strain upon it.

I am now confident that this cramp or spasm from overworked muscles plays a very important part in the production of insufficiencies, and I am also sure, because I have seen it practically demonstrated, that spasm of the ciliary muscle is an equal, or perhaps the most important, factor in the development of muscular asthenopia.

A muscle will not become weak without a cause. Even if it becomes cramped and spasmodically contracted (functionally strengthened), it is an evidence of weakness and not of tone. Cramp or spasm is a result of its weakened and overworked condition; and for this reason I believe there are very few cases of insufficiency without an error of refraction, either real or factitious; and the forced error is certainly the more productive of this condition.

Let us inquire *how* this may be accomplished.

Martin, I believe, advanced a theory of segmentary or unsymmetrical or, in other words, irregular contractions of the ciliary muscles, whereby the lens became irregularly curved or astigmatic. We have good reason for believing that the theory is correct.

We have all of us seen eyes which have presented all the evidences of astigmatism, simple, compound, mixed or irregular, which, after the accommodation had been thoroughly suspended under atropine, have been found to be emmetropic. Now there was a functional defect somewhere before the accommodation was suspended, and that defect could have been in but one place—the crystalline lens.

Moreover, we occasionally meet with cases that do not show any evidence of astigmatism until after the accommodation is suspended. In these there is corneal astigmatism which has been compensated for in the lens by its assuming such a shape as to correct the corneal irregularity. Donders was the first, I believe, who brought to notice this condition.

We are taught that the *macula lutea* receives the impressions of images, and that it is the "sensitive point," that the images received at other points of the retina are not so distinct, hence it is the effort of the orbital muscles to so balance the eye that the impressions may be received on this particular point.

We know the influence upon the ocular muscles where there is a clear spot of cornea on an exten-

sive opacity. The eye involuntarily assumes that position in which the rays of light will best be received on this particular portion of the cornea, so as to fall as nearly as possible upon the yellow spot, and thus secure the best possible vision that can be obtained under the circumstances. So also in other cases, where there is from any cause a removal of the pupil from behind the centre of the cornea to some other portion, the eye adapts itself to that position in which it can receive the best vision. To do do this one muscle or set of muscles become strengthened, and their antagonists correspondingly weakened.

Now we know that any abnormal change in the curvature of the crystalline lens will change the angle of vision and, upon the same principle as in corneal opacities and abnormal positions of the pupils, disturb the equilibrium of the eye by its influence upon the ocular muscles.

If, then, certain changes in the curvature of the crystalline lens are productive of insufficiencies of the internal and external recti muscles, certain other changes will also account for asthenopia of the superior and inferior recti.

To summarize thus: When an eye turns in, or out, or up, or down, or in any manner away from its normal position, there is one of two conditions existing. It does so either to place itself in such a position as to receive a better retinal image, and thereby assist both eyes to bear upon the same point; or to place itself in that position that binocular vision will be entirely disregarded in order to avoid the confusion of images.

My experience has taught me that the low degrees of ametropia are, perhaps, more fruitful in the causation and maintenance of muscular asthenopia than the high, because of the strained effort to maintain binocular vision; for as heretofore explained, in the high degrees one eye is disregarded and the patient uses the other, while in the low degrees binocular vision can be maintained with some effort, which, however, if too steadily persisted in, produces fatigue.

From this consideration of the subject, the conditions which contribute to insufficiencies may be summarized as follows: *Myopia*, *hyperopia*, *astigmatism* and *overwork*, the latter being the exciting cause, which is more or less augmented by additional refractive error.

In considering the conditions which tend to the abnormal change of the visual angle, it would seem that the *punctum saliens* in the treatment of insufficiencies of the internal recti, is to prevent great and long continued efforts at convergence, and thus relieve the inordinate contractions of these muscles. Nothing will contribute so much to this purpose as remedying any refractive error, and thus rendering the eye as nearly emmetropic as possible.

3. The indications for treatment must necessarily be brief.

Although not entirely ignoring operative procedures, it must be acknowledged that tenotomies have not afforded the brilliant results so ardently claimed for them by their supporters. A tenotomy is prejudicial for one very serious reason: the movement of the eye is curtailed, and if the operation is successful in effecting fusion of images at a near point, there is usually too much restriction of motion for a distance, hence an annoying diplopia follows, which for persons engaged in the ordinary pursuits of life is much worse than the insufficiency.

I am seriously impressed that operative procedures should be a *dernier ressort*, when all other means have failed—then advancement of the weak muscle, instead of tenotomy of the strong. There is not then the risk of diminishing the movements of the eye.

My experience has induced me to believe that there is a very intimate relation between spasm of the ciliary muscle and insufficiencies of the orbital muscles. I rarely now make an examination for refractive error, without making the test for insufficiency, and I have been surprised at the frequency with which I have met this affection.

Although insufficiency of the internal rectus is far the most frequent, yet the test will frequently disclose it in the other orbital muscles, and especially in the superior and inferior recti.

The examination now referred to is rather a preliminary inspection, for we can rarely determine correctly the refractive condition of an eye without its thorough atropinization. The accommodation requires to be thoroughly suspended before an attempt is made at correction with glasses. This is important, whether there appears to be an insufficiency or not in connection with the refractive error, for the reason that after the eyes are thoroughly atropinized we usually find them in a very different condition from that shown at the preliminary examination. What was then regarded as myopia, now turns out to be emmetropia, or perhaps hyperopia. What appeared a well-marked astigmatism is now neutralized, and insufficiencies frequently disappear.

I first began making observations relative to the influence of spasm of the ciliary muscle upon the recti muscles in August, 1888, since which time I have had sixteen cases representing marked insufficiencies, some of the internal recti, a few of the superior and inferior, and one of the external rectus, all of which have entirely disappeared under the use of atropine.

Some of these cases marked an astigmatism, but after the thorough relaxation of the accommodation, the astigmatism in nearly all the cases vanished with the insufficiency.

I will report here two of these cases as representatives of the conditions herein described.

C. S. M., railway clerk, æt. 32, called February 8, 1889. Was suffering much from defective vis-

ion. The letters appeared blurred, and the letters and words ran together. Suffered from vertigo and insomnia, and occasionally experienced an annoying tremor in his left eye. It was impossible for him to continue his work but a short time, when he was compelled to rest his eyes before proceeding farther.

The preliminary examination revealed nothing particularly in the way of refractive error, as neither a + nor — glass made any perceptible improvement. A test for insufficiency, however, developed an insufficiency of the interni 3° at 20 feet, and 12° at 1 foot. I recommended thorough atropinization by the use of a 4 gr. solution, applied to the eyes every six hours, which was continued for twenty-four hours.

February 9. R. E. = $\frac{20}{20}$ with + 30; L. E. = $\frac{20}{30}$ with + 40. Atropine ordered continued twenty-four hours longer.

February 10. R. E. = $\frac{20}{20}$ with + 30; L. E. = $\frac{20}{30}$ with + 30 best.

I now made the test for insufficiency by use of the prism in connection with the correcting glasses, and found that the insufficiency had entirely disappeared. He was now prescribed a + 50 for each eye and instructed to wear them constantly, and when the accommodation was fully restored, to report.

February 23. Patient called and expressed himself as being well satisfied with the glasses. Could work all day with ease, suffers no more from vertigo, and sleeps well all night.

April 10. Patient called and complained of tremor of left eye, and a partial return to old symptoms, as blurring of letters and vertigo. Examination revealed the same degrees of insufficiency as before—3° at 20 feet, 12° at 1 foot.

As vision appeared more nearly perfect at a distance in both eyes with + 40 than + 50, I prescribed the former and, as all the trouble appeared to be with the left eye, ordered the atropine solution continued in that eye, three times daily for one week.

June 15. Patient called and informed me that he has suffered no inconvenience from either eye since the atropinization, more than two months ago, although he has had an extra amount of work to perform. The examination revealed no insufficiency whatever.

Miss O. C., æt. 17 years, has suffered so much from defective vision that she was compelled to quit school.

May 18, 1889. R. E. $\frac{20}{30}$ with + 24 cyl. ax. vert.; L. E. = $\frac{20}{40}$. No improvement with glasses. Insufficiency external recti 3° at 20 feet, nothing at 1 foot. Eyes ordered under atropine every six hours for twenty-four hours.

May 19. R. E. = $\frac{20}{20}$ with + 7; L. E. $\frac{20}{30}$, best with + 7. Eyes kept under atropine twenty-four hours longer, and the same glasses gave the best vision as yesterday. There is now no astigmatism nor insufficiency.

A + 12 was prescribed for each eye, and the glasses were ordered to be worn constantly. June 19 I again saw the patient, and vision is $\frac{20}{20}$ with both eyes under the correcting glasses.

133 E. Spring St.

EMPYEMA OF THE FRONTAL SINUSES.

Read in the Section of Laryngology at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY GEORGE A. RICHARDS, M.D.,
OF NEW YORK.

A subject of which comparatively little mention is made in most of the treatises on surgery and diseases of the nose, but which, on account of the great distress and many accidents liable to occur, deserves more consideration, is empyema of the frontal sinuses. Some of the text-books on diseases of the eye give a very good description of the disease with its symptoms, course and treatment. The periodical press is, however, the source from which to draw material, and this has paid liberal tribute in the compilation of the following paper.

We wish to record a case occurring in the service of Dr. S. O. VanderPoel and the writer at the Vanderbilt clinic, New York, and will then give the results of the study of forty-eight other cases collected from medical literature. Only those cases with fairly complete histories have been accepted, and of these there are some in which many important points have been omitted in the description.

Case.—Horatio N., æt. 57, United States. Forty years ago patient dealt in plaster of Paris; this caused a chronic rhinitis, from which he has suffered ever since. Fifteen years ago a polyp was removed from the right side of the nose. This returned, and nothing has been done for it during the last thirteen years, during which time he has had difficulty in breathing through the right side of the nose and a pretty constant discharge until three years ago, when the right side of the nose became absolutely occluded. He has been troubled with frequent "colds," accompanied by much headache and some frontal pressure. At these times there have been much epiphora and slight ptosis on the right side. For six years he has noticed failing sight, especially of the right eye, and a marked loss of memory and of the power of application. This was sufficient to cause interference with business. The senses of smell and taste have also been diminished.

Eight months ago patient noticed a swelling at the root of the nose on the right side, at first small, gradually enlarging without any pain, but with a constant feeling of distension in the frontal region. This was accompanied by occasional flushing, but never by any chilly feelings. The size of the swelling was about that of a small

cherry, but varied somewhat, being larger in the evening than in the morning. When it was large the discharge was increased and was thick, ropy and greenish-yellow. The patient slept well, ate well and felt well, except for the mental depression.

He thinks the right eye has been too prominent at times, but has never had any diplopia. Examination showed right side of nose completely filled with polypi. After several sittings, in which over twenty polypi of different sizes were extracted, pressure on the swelling caused discharge of very foul-smelling pus from nose; this appeared about opposite the middle turbinated bone. The anterior portion of the middle turbinated body was the last to be cleaned. An opening was then made into the external swelling from without, and the entire tract washed out with a solution of carbolic acid. Forced expiration caused the passage of pus, water and air through the wound when nose and mouth were closed. After a few days a perforated rubber drainage tube was put into the nose through the opening, and thereafter the parts were cleansed thrice daily. The relief to all symptoms was marked and immediate. The tube was removed and the wound healed in less than one month; and now, six months after, the change in the patient has been very great.

The disease may be due to a primary inflammation of the mucous membrane. This might cause an acute or chronic obstruction of the infundibulum, and so a retention of pus. Probably the majority of cases in which no cause can be remembered belongs to this class, a coryza being such an unimportant episode as not to be recalled after the lapse of a short time. Of the forty-eight cases acute obstruction is mentioned in but three. Large turbinated bodies and polypi were found in only four cases; and foreign bodies, such as bullets, metal, maggots, flies and other insects, as well as diseases, such as syphilis, glanders, caries and necrosis, are very rare in the causation of this disease. Injuries by blows or falls caused fourteen cases, distributed equally between males and females. Thus, there was over half the entire number in which no known cause could be given. In view of the fact that most of these cases occurred before it was the rule to examine the nose of patients so affected, or in the practice of men who were not accustomed to this examination, we can not say how much greater the proportion of cases caused by blocking up of the infundibulum by some intra-nasal disease would be. It is our belief, however, that many of the cases in which "no cause" is stated were the result of stenosis of the passage by polypi, large turbinated bodies, hypertrophic rhinitis, or inspissated mucus. Thus the statement of Bader[1], that eight in nine cases result from injury, is rather inexact, the disease being, as a rule, the result of a more or less intense catarrhal inflammation of the mucous membrane of the sinus.

In the very acute cases, it may be severe enough to cause rapid accumulation of pus; in the more chronic cases it may cause distension by mucus, this resulting in irritation and the production of a greater or less amount of pus, which is mixed with the mucus. In a few cases the trouble may have been caused by a periostitis followed by necrosis, and this by inflammation of the lining membrane of the sinus.

When accumulation of pus or muco-pus occurs sufficient to cause distension, the orbital plate of the frontal bone, being the thinnest and least resisting wall of the sinus, is the first to give way, and so the swelling in the majority of cases occupies a position at the inner and upper part of the orbit and at the root of the nose, just at the junction of the nasal, superior maxillary and lachrymal bones with the frontal, above the attachment of the tendo oculi. This is an important point in diagnosis, for the swelling has been mistaken for a distension of the lachrymal sac. In a few cases the swelling has occupied a position just above the supraorbital ridge; in these cases there was probably more necrosis than absorption of bone. Perforation of the posterior wall of the sinus is not a very infrequent occurrence.

Of forty-eight cases, twenty-four males and nineteen females were the subjects of the disease; in five cases the sex was not mentioned. There is no apparent reason why one side should be involved more frequently than another; yet we find the left side affected twenty-one times, against twelve cases in which the right side was the seat of the disease. A simultaneous involvement of both sides is exceedingly rare. In fifteen cases no mention is made of the side. The age of males varied between 13 and 69 years, averaging 35 years. The average age of females was 32 years, the youngest being 10 years old, the oldest 66 years of age.

In fourteen cases of injury there was no preponderance of either sex, though it would naturally be supposed that the rougher occupations of the male would render him more liable. A peculiarity in those cases resulting from injury is the length of time which elapses between the infliction of the injury and the appearance of troublesome symptoms. Lawson[2] mentions a case in which fifty-four years elapsed between injury and seeking relief. The time varied between one and twenty-four years in fourteen cases. On the other hand, in the acute cases only eight days may elapse, or patients may suffer several weeks or months before consulting a physician.

In the very acute cases the symptoms are frontal pain and oppression, the pain sometimes radiating along the course of the supraorbital nerve; excessive headache, some fever, chilly feelings and

[1] Bader. The Eye and its Natural and Morbid Changes.

[2] Lawson. Practitioner, London, 1870, v, pp. 8–12.

general malaise, together with the symptoms of an ordinary coryza, inability to breathe through the nose, discharge of mucus, muco-pus or sero-pus, sneezing, and lachrymation. There may be swelling, œdema and an erysipelatous blush over the site of the sinus involved. These cases have been mistaken for true erysipelas.

The subacute cases present the same picture in a modified form.

In the chronic cases, which include the vast majority, the invasion is very insidious—a feeling of distension in the frontal region, pain, which may be severe, but is generally slight; a more or less constant discharge from the nose is a frequent symptom. Sooner or later a swelling appears; this is accompanied by but little pain, and at first is so hard as to have been mistaken in several cases for an orbital or frontal exostosis. A sense of fluctuation, obscure at first, gradually becomes marked by the absorption of the bone. The swelling finally may grow so large that it presses the eyeball downward and outward, causing marked exophthalmos, as in the eleven cases recorded by Hulke[3], Lawson[4], Wells[5], Thompson[6], Bull[7], Michaelis[8], Otto[9], and Warren[10].

Failing sight is a somewhat frequent occurrence, having been present in eight cases. Occasionally vision becomes better or worse, according as the swelling decreases or increases in size. Diplopia and ptosis are sometimes present. In our case here recorded ptosis was intermittent, occurring during acute exacerbation.

Higgens[11] emphasizes the variation in the size of the swelling in the morning and evening. The size varies greatly; the cavity may contain but one drachm of fluid, or may contain as much as three ounces (Bull[12]), or even four ounces, as in the case recorded by Warren[13]. Welge[14] reports a case where, after severe cerebral symptoms and final recovery, the orbit and the frontal, sphenoidal and maxillary sinuses formed one enormous cavity. In this case the cause was probably connected with a gonorrhœa.

In some cases there is an occasional patency of the canal, and then the tumor may be diminished in size and pus forced from the nose by pressure on the swelling; or the tumor may be enlarged by forcible expiration with the nose and mouth closed. Lamzweerde[15] records a case in which the first appearance of a tumor immediately succeeded a violent attack of vomiting.

The apparent pulsation of the swelling, due to breathing, and the discharge of matter similar in appearance to cerebral substance, have only to be mentioned to guard against the possibility of error.

The complications which may occur are not many, but their great importance deserves more than a mere reference.

On account of the blocking up of the air passage and the resulting mouth breathing, a very distressing dryness of the throat sometimes occurs. This, however, does not cause so much complaint as the diminution or even complete loss of the senses of smell and taste.

A true erysipelas is a possible but rather infrequent complication. This cannot be said of involvement of the brain, as Bousquet[16], Richter[17], Demarquay,[18] and Celliez[19] each record a case in which the sinus communicated with an abscess in the anterior lobe of the brain, secondary to the empyema.

Beers, quoted by Walton, 1875, describes a case in which the patient refused to submit to an operation and lost the sight of both eyes.

In cases of cerebral involvement, anosmia and optic neuritis may be the first symptom to which attention is drawn.

Otto[20] records a case in which an enormous polyp (?) involving orbit, frontal sinus, nose and ethmoidal cells, and causing accumulation of pus, was complicated by meningitis and death.

When there is no visible swelling and no discharge from the nose, as in the case of Celliez, the trouble may be mistaken for abscess of the lungs, as described by Lieutaud.[21] This patient expectorated a large amount of pus, and had fever, headache, and great prostration. After death an enormous cavity, comprising the frontal, sphenoidal and maxillary sinuses, was found filled with pus. There was absolutely no lung lesion.

The treatment of this disease is exceedingly simple, and the results of correct treatment are very gratifying.

In the seventeenth and early part of the eighteenth centuries physicians sometimes used snuff, thinking that, as nature occasionally discharged the collection through the nose, an indication was thereby given that should be followed by art.

Runge, in the middle of the eighteenth century, recommended a more rational treatment, namely, stuffing the cavity, after opening, with irritating dressings, and so causing granulation and healing from the bottom. He mentions the deeply depressed cicatrix and persistent fistulæ occasionally resulting.

Dörner, and also Vidal, many years ago advised having a free opening into the nose and the

3 Hulke. Ophth. Hosp. Rep., London, 1861, iii, pp. 147-154. Ophth. Hosp, Rep., London, 1862, iv, pp. 176-178.
4 Lawson. Op. cit.
5 Wells. Lancet, London, 1870, i, p. 694.
6 Thompson. Northwest. Lancet, St. Paul, 1884-5, iv, pp. 284-286.
7 Bull. Med. Record, New York, 1885, xxviii, p. 120.
8 Michaelis. Jour. für die Chirurgie, etc., 1802, iii, p. 627.
9 Otto. Deutsch. Arch. f. Klin. Med., 1873, xi, pp. 532-538.
10 Warren. Surgical Observations, etc., Boston, 1867, p. 57.
11 Higgens. Guy's Hosp. Rep., London, 1881, 3 s., xxv, pp. 27-40.
12 Bull. Op. cit.
13 Warren. Op. cit.
14 Welge. Dissert. Götting., 1786.
15 Lamzweerde. Appendix ad Armam. Lugduin Batav., 1693.
16 Bousquet. Prog. Méd., Paris, 1877, v, p. 972.
17 Richter. In der Novi Comment, Soc. Reg. Scient. Götting, 1773.
18 Demarquay. Traité des Tumeurs de l'Orbite, Paris, 1860.
19 Celliez. Journal de Corvisart, Leroux, et Boyer, T. xi.
20 Otto. Op. cit.
21 Lieutaud. Acad. Roy. des Sciences, 1735, p. 18.

introduction of a fillet or tube-canula through the opening into the nose. This is substantially the treatment followed to-day.

With the signs and symptoms of a tumor in the locality mentioned we would be inclined to make an exploratory incision. A small exploring needle or a very small drill would give important information as to the contents and thickness of the bony wall of these swellings, if the case presented itself before absorption of the bone has taken place. If a collection of pus be found, a trephine, or the dental engine's drills or a chisel should be freely used. After an opening large enough to admit the finger has been made over the site of the disease and careful exploration of the cavity has taken place, a free opening should be made into the nose, the instrument, guided by a finger of the left hand, introduced into the nostril of the same side. If necessary, force may be used in breaking through the floor of the cavity into the upper part of the nose. A perforated rubber drainage tube should be introduced into the nose through the opening and the entire cavity washed with some antiseptic fluid. Listerine proved very valuable and pleasant in our case. An astringent may be used later, if necessary.

In the records of the cases analyzed one is at once struck by the comparatively small amount of attention paid to the subject of free drainage through the nose. In six cases no mention is made of this, and of these only one is said to have been cured. It is stated in eleven cases that there was no drainage through the nose; of this number three were cured, seven not cured, one not mentioned. In twenty-five cases in which there was free drainage into the nose twenty-three were cured, and in the other two the result was not stated.

Soelberg Wells advises passing an instrument upwards from the nose into the sinus. Ogston[22] says he has never been able to do so, and in our case it was tried, but was found absolutely impracticable. Except in favorable cases this would seem to be very difficult.

In cleaning the cavity, naturally any foreign body would be removed; and in case of polypoid degeneration of the mucous membrane lining the sinus, as described by Ogston and Péan[23], this should be thoroughly destroyed. Any dead bone should be removed, using great care and no force if the bone be connected with the posterior wall of the sinus, lest the membranes of the brain or the brain itself should be injured.

Death occurred in six cases; in four caused by secondary abscess of the brain, in one by meningitis, and in another by albuminuria.

For help in the preparation of this article we are much indebted to Dr. C. J. Colles. The greater number of references has been omitted purposely, as some of the later German articles and French theses are not obtainable. An addendum will be published containing references to these and bibliography to date.

[22] Ogston. Med. Chronicle, Manchester, 1884-5, i, p. 235.
[23] Péan. Gaz. des Hôp., Paris, 1881, p. 66.

DR. JONATHAN WRIGHT reported a case in an old woman in whom, after removal of intranasal obstruction, it was necessary to trephine the supraorbital sinus, and this still proving unavailing, the whole anterior wall was removed and the wound allowed to heal by granulation from the bottom. When last seen this procedure promised success, but a large and very deforming cicatrix must result, though drainage was of course resorted to, both after trephining and after the more extended operation.

INITIAL EYE SYMPTOMS IN LOCOMOTOR ATAXY.

Read before the Fort Wayne Academy of Medicine.

BY KENT K. WHEELOCK, M.D.,
OF FORT WAYNE, IND.,
PROFESSOR OF OPHTHALMOLOGY AND OTOLOGY IN THE FORT WAYNE COLLEGE OF MEDICINE.

The case which I am about to present for your consideration involves the question of the prodromal symptoms of locomotor ataxy, and while to my mind the symptoms are sufficient to warrant me in arriving at the conclusion that my patient has the prodromata of tabes, yet if any one should think the case not fully established his fullest criticism is invited as much in the interest of the patient as the discussion of the whole question involved.

On November 27, 1887, Frederick B., æt 55, iron merchant in Fort Wayne, consulted me for an ear trouble which had bothered him for some time, as much on account of a singing noise which had recently sprung up as the defect in hearing which had annoyed him for some time. The singing was confined to the left ear.

Right ear W. = $\frac{3}{36}$, left ear W. = P. Eustachian tube not open to catheter, Politzer or Valsalvas' method. By traction on membrana tymp. with Siegel's otoscope there was some improvement in the noise. Treatment by attempted inflation, catheterization and local application did not improve the hearing or noise so the patient was not recommended to continue.

On June 21, 1889, he again came under my observation and gave me the following history: Has suffered from occasional frontal headache for three years, vomiting on two or three occasions Headaches came on about every three or four weeks and lasted from twelve to eighteen hours. On May 1st of the present year had a serious headache which culminated in vomiting at about 3 P.M.; at the same time patient lost consciousness and fell to the floor. He remained unconscious five minutes, the eyes turning up, but not oscil-

lating. Has had dizzy spells for about one year, and the dizziness has increased in intensity till at present are frequent, depending upon his occupation. When he looks up or ascends a stair it becomes worse. The increase has been greater since May 1. Has had sharp shooting pains in the legs below the knees for a year or two, which were attributed to rheumatism, and were treated as such. Yet he had no joint swelling or painful joints. The trouble for which I was consulted was double vision, which came on after the attack in May. He consulted a quack first and was under his treatment for six weeks.

Upon examination I found right eye S. $\frac{20}{30}$; + 0.5 D. S. = $\frac{20}{20}$; left eye = $\frac{20}{20}$; accepts 0.5 D. Right eye + 2.5 D. Jaeger No. 1, 12–16; left eye same, showing that the accommodation ruled by the third nerve is not impaired. The double images are vertical and when neither eye is covered with a colored glass the image of the left eye stands 2½ feet above the image of the right eye, and leans towards the perpendicular or lower one, showing that the cornea of the left eye looks downwards when the candle flame impinges on the retina below the macula and is projected in the same direction it would project images if the optic axis were horizontal or parallel with the other eye. The movement of both eyes is perfect in every direction, showing the effect to be partial only. By placing a prism of 15° base toward the paretic or superior rectus muscle, the images are single, or 8° base up before left eye and 7° base down before right eye blend the images. The Argyle-Robertson pupil is present; the pupil is about the size of a pin head and does not respond to stimulation of light, either artificial or natural, when intensified by condensation. Upon covering either eye and asking the patient to read, the pupils contract; they also contract when both eyes attempt to converge in the act of reading. Under atropia the left pupil dilated in an ovoid manner, but after a few hours the space became circular.

Examination of the ears shows that the t. f. c′ is not heard in the left ear when placed on the vertex, and the same tone heard distinctly in right ear is not heard at all in left ear; t. f. on left mastoid not heard, while the same sound is heard eighteen seconds on the right mastoid in a corresponding position. When struck upon a hard substance, producing a very loud tone, the vibrations heard for a moment at a point near the center of the mastoid and on the temporal bone directly above the external auditory meatus. Voice sound heard very feebly in left ear, W. not at all. Right ear moderate voice heard, also watch. The knee-jerk is exaggerated, and if the patient attempts to close his eyes and stand with his heels together he sways from side to side. His walk backwards is very unsteady and while advancing with eyes open he steps high and drops his feet heavily. While it is a well established clinical fact, substantiated by post-mortem appearances, that deafness of one or both ears frequently follows sclerosis of the posterior columns of the spinal cord, yet tabes could not be predicated upon the presence of this symptom alone, and would only, with our present knowledge, go for a factor in the total symptoms recognized as definitive. Erb regards the coëxistence of the tabes and deafness as accidental rather than causative, and cites Lucas's two cases in support of this statement. Yet he admits the probability of relationship to exist, and cites a case of a Russian naval officer, in which, during the initial stage occasional headaches and deafness had arisen, the latter gradually increasing. This case passed into the hands of Prof. Moos, when, in a few months, total loss of bone conduction was followed by loss of ærial conduction, and the patient became deaf. Later he seems to have modified his opinion, for he states that in some cases of tabes he found definite atrophy of the auditory nerve to be the cause of deafness. Thos. Buzzard, in the *Lancet*, Sept., 1881, quotes Duchene, Remak and Tobinard as having already pointed out that the auditory nerve may be affected in tabes, and Pierrot showed that it is a frequent complication of this disease. On consulting my notes I find that bone conduction in the case of my lamented friend Dr. J. S. Gregg (who died of tabes), whose ears and eyes I examined a number of times, showed subnormal bone conduction. The late Dr. McBride found a greater or less degree of deafness in every case of tabes which came under his observation, although it was often transitory. In the absence of recorded examinations showing in what the defective hearing consisted, we can only assume that he meant that a subnormal bone conduction existed. Ormerod calls attention to it in five out of thirteen cases. In general I think it can only be regarded as a side light in the picture. Yet when seen in connection with the affections of the third, fourth and sixth the attentive should be at once arrested. Amongst all the affections of the special senses, the disturbance of the muscle balance is most frequent in tabes. As prodromal and transitory symptoms they occur as pupil disturbances and muscle paresis in more than 50 per cent. of all cases of locomotor ataxy, according to Erb. And it is this transitory character of the eye troubles which establish their value as prodromata. In the course of the disease, and before its termination, some form of eye muscle disturbance occurs in one third of the cases. They then have lost their value and form only another character in the *bizzarre* picture whose lineaments are so well known. Bunching the observations of Argyle-Robertson, Knapp, Lever and Henpel, the pupils are sometimes contracted or dilated on one side; but more frequently there is a bilateral, uni-

form, generally pretty considerable contraction, which presents the character of spinal myosis; that is, the pupils do not react to light, but do react distinctly to accommodative impulses. Spitzka says among the exact signs of tabes reflex iridoplegia and abolition of the knee-jerk are the first to appear. He further says that it may be assumed with safety that in 99 out of 100 cases the inability of the pupil to respond to light and the absence of the knee-jerk will be found long before ataxy is developed. Cases have been found where no other positive signs were found. Spitzka found double vision in fifty-eight out of eighty-one tabetic patients in whom the oculo-motor signs were recorded. He says further: "By far the most important of the exact prodromal signs of tabes are two symptoms—one involving a special faculty of coördination and the other the reflex movement of the pupil. One or both of these must be present to justify the diagnosis of incipient tabes." He further says: "Reflex iridoplegia is, when once established, the most permanent and unvarying evidence of the disease, and is of great differential diagnosis, because it is found in very few other conditions. Spitzka recognizes tinnitus and atrophy of the auditory nerves among the symptoms of tabes." There is one symptom, or sign rather, which a typical tabes should present, absent in my case, viz.: the Westphal symptom. Instead of this loss of reflex my case presents a heightened reflex. This may be accounted for on the supposition that the lateral columns have become affected first, when we have later a combined posterior and lateral sclerosis. It has been claimed that the disappearance of the patellar jerk has been preceded by exaggerated reflex and that the exaggerated reflex is a quite common phenomena.

This paper, read before the Academy of Medicine in Sept., 1889, was not intended for publication, but to present what I then thought to be an interesting case of incipient tabes. After referring him back to his family physician with an opinion in accordance with what has been said above, the patient was referred to Prof. Pepper who discovered diabetes mellitus. The eye symptoms were probably due to irritation at the floor of the fourth ventricle, while the ear trouble was due to the spinal trouble as set forth above.

ULCERATIVE ENDOCARDITIS.

Read in the Section of Practice of Medicine, Materia Medica and Physiology, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY J. G. TRUAX, M.D.,
OF NEW YORK CITY.

This is not a new disease. It has been known and described under several different names for at least ninety years. It is not the intention of the writer to give a complete history of the disease to date. Such an effort would be as profitable as digging up the ground in a field thoroughly cultivated and resplendent in the beauty of its production. The writer, in the researches he has made, has failed to discover any really new thought or fact which could be called the fruit of labor in this particular field during the past few years. His intention is to give a history of such cases as have come under his care, together with any thought which may seem to him to be of practical value. Any person desirous of becoming more thoroughly informed on this subject is referred by the writer to Dr. Osler's lecture, published in the *Lancet* of 1885, and to the writings of others.

Case 1.—Frances Blaza; born in Germany; U. S. five months; age 21 years; unable to speak English; was admitted into the Harlem Hospital May 31, 1887. Her occupation was that of a domestic. No family or personal history could be obtained, excepting the meagre one from her aunt, that her mind was unbalanced at each menstrual epoch, and that her menstrual period did not occur oftener than every three months. Patient was a large, healthy, well-developed girl, and the fact of her not menstruating regularly was evidence that something was wrong with her circulation. When admitted to the hospital she was flowing. Every muscle of her body seemed to take on choreic contractions, and she was unable to remain quiet a moment; mind confused, and at times delirious. The house physician supposed she was suffering from meningitis, and to give her relief had all the hair shaved from her head and the ice cap applied. He also put her upon a mixture of bromide of potassium and hydrate of chloral. Afterwards she was given sulphate of morphine hypodermically, and quinine in ten grain doses three times daily. These medicines had but little effect. The convulsions lasted to the end.

June 1st her highest temperature was 102⅖°; June 2d, 103⅗°; pulse, 120; June 3d, 104°; June 4th, 103⅘°. On the fourth day hyosyamim and morphine were given together. Result—died June 5th, 1 A.M. The autopsy revealed an ulcerative endocarditis, an old pericarditis with extensive adhesions between heart and pericardium, calcified tubercular deposits in apex of left lung, œdema of both lungs, and a parenchymatous hepatitis; slight meningitis. The vegetations were confined to the mitral valve and were numerous. Some of them had ulcerated. None of the other organs diseased.

Case 2.—John C.; age, 19 years; native of Ireland; U. S. three years; single; laborer; admitted into the hospital March 6, 1889. His temperature at this time was 102°; pulse, 120; respiration, 40. His body and limbs were covered with an eruption of a peculiar nature. It was in patches of irregular size and shape; average diameter,

one-half inch. Color, faded brown and purplish, not elevated, and would not fade upon pressure; hæmorrhagic in character.

The following is all that could be obtained of his history previous to his admission into the hospital: His habits were good and he was considered healthy. They said patient had been sick for three days. March 7th, temperature 104°; pulse, 120; respiration, 40. March 8th, temperature 103½; pulse, 145; respiration, 60. When first seen by writer patient was very delirious; in the intervals was in a semi-comatose condition. While delirious he was constantly talking to some imaginary person. Autopsy held by Dr. Grauer, March 9th, P.M.. Body fairly well nourished; heart hypertrophied; aortic, mitral and tricuspid valves had vegetative growths upon them. Some of these growths had ulcerated. There was one marked ulcer, so extensive that quite a portion of the heart-tissue was destroyed. At apex of right lung was found a tubercle. The lungs were quite œdematous; spleen enlarged and contained several hæmorrhagic infarctions; brain, there was a large hæmorrhage into the right lateral ventricle, also small abscesses in the cerebrum. There was a large tuberculous ulcer near the ileo-cæcal valve.

Case 3.—Wm. C.; age, 51 years; native of the United States; widower; occupation, none; admitted March 2, 1889. Gave the history of being a hard drinker. Physical examination showed him to be suffering with a slight pain in the knee, but no swelling or redness. Heart hypertrophied; no murmur could be detected. Urine, color normal; sp. gr., 1,014; no albumen. Patient semi-comatose when admitted; temperature, 102°; pulse, 132, and very weak; respiration, 40. During the night he was very delirious; did not sleep at all. March 3d, highest temperature 101½°; March 4th, 101°; March 5th, 104°. Died March 6th, 5:30 A.M. Autopsy held by Dr. Grauer. Rigor mortis well marked; body well nourished. Brain, lepto-meningitis, which had become suppurative; cerebral fluid slightly increased; heart hypertrophied; vegetative growths on mitral and aortic valves; some had ulcerated; spleen enlarged and contained small hæmorrhagic infarctions and abscesses; kidneys showed parenchymatous inflammation, also contained some small metastatic abscesses; lungs œdematous, with small abscesses.

Case 4.—Frank C.; age, 26 years; native of Italy; U. S. three months; occupation, laborer; admitted in the hospital February 28, 1888, A.M. Diagnosis, double lobar pneumonia, cardiac lesions, mitral regurgitant murmur. There was considerable effusion into the abdominal cavity. I will not give the history of this patient in detail. He was admitted February 28th and died March 27th. He was cured of his pneumonia, as the autopsy showed. At no time did his temperature get above 102°. At no time during his illness could albumen be detected in his urine. Autopsy: Fluid in pericardial sac; fluid in pleural cavity; fluid in peritoneal cavity; vegetations on the aortic and tricuspid valves (free edges of the valves); adhesions of pleura on left side; brown induration of the lungs, due to the heart trouble; spleen enlarged by a hard, passive congestion; left kidney larger than normal and fatty; parenchymatous nephritis; right kidney contained small cysts; chronic gastritis; liver had a nutmeg appearance.

Case 5.—Patrick K.; age, 15 years; native of Ireland; U. S. six years; occupation, butcher's apprentice; always healthy until last sickness; was admitted March 10, 1889, into the hospital and treated as a case of tubercular meningitis. Died March 22d. Autopsy made by Dr. Grauer. Body very much emaciated; sordes on teeth; cervical glands very much enlarged; rigor mortis well marked; brain, tubercular meningitis, pachymeningitis hæmorrhagica interna of right lobe; little exudation over cortex, but much more at base; tubercles studded all over left hemisphere, fewer in number over right; both sides of the fissure of Sylvius studded with tubercles; heart, four small tubercles, of the size of a pinhead, over upper surface of right ventricle, and one on the lower part near septum-ventriculorum; small vegetation on mitral valve, which had ulcerated; mitral stenosis and slight regurgitation.

Case 6.—Mr. P.; about 45 years old; a man of considerable wealth; complained of feeling badly for two weeks; did not think he was sick enough to go to bed or to call in a physician. Went into a restaurant to get his lunch. While waiting to be served he suddenly jumped to his feet and, taking hold of a chair, commenced smashing everything within his reach. He was finally controlled by those present, put in a carriage and sent home. The next day the writer was called in consultation to see him. Body covered with purpuric spots, some of which had become brown. He was very delirious, conversing with some imaginary person. It took the united strength of two attendants to keep him in bed. Temperature, 103°. No heart murmur could be heard. From symptoms, temperature, manner of attack, a diagnosis of ulcerative endocarditis was made. Another physician, a specialist on nervous diseases, was called in. His diagnosis was acute mania; his advice, that the patient be sent to an insane asylum. He was sent; result, died in three days. A partial autopsy was obtained. The writer promised he would confine his examination to the heart alone. The mitral and aortic valves had vegetative growths upon them; one, of considerable size, had ulcerated. This last case is really the cause of the writer choosing this disease as the subject of his paper. While the disease is undoubtedly a rare one, there is a possibility of its being more frequent than we think.

The writer's reason for so thinking is this: Of the six cases reported, only two of them were diagnosed properly before death; and were it not that the real trouble was revealed by an autopsy, the truth would never have been known in four of them.

The writer wishes to call your attention to the following observations: 1. In none of his cases was the disease primary and uncomplicated. 2. The heart lesions were not always associated with heart murmur. 3. The temperature and many of the symptoms are common with those of typhoid fever. 4. In none of the writer's cases did the temperature rise above 104°. It was lower in the morning, higher in the evening. 5. Meningitis almost always present. 6. Two cases complicated with tuberculosis, one with pneumonia, one with pleurisy, one with hypertrophy of heart, and the other not examined sufficiently to be able to tell. 7. Treatment seemed to have no particular effect, excepting hypnotics. Fowler's solution of arsenious acid, quinine and bichloride of mercury were tried. 8. The heart was examined and cultures made in three of the most malignant cases for microörganisms; none were ever found. The writer still inclines to the belief that the disease has for its cause the infection of some germ.

17 East 127th street.

THE USE OF VERATRUM VIRIDE IN THE TREATMENT OF DISEASES.

Read in the Section of the Practice of Medicine, Materia Medica and Physiology, at the Fortieth Annual Meeting of the American Medical Association, at Newport, June, 1889.

BY THOMAS LEGARÉ, M.D.,
OF CHARLESTON, S. C.

I beg leave to introduce to the notice of the Section a few remarks upon the properties and uses of the veratrum viride. We all know of its remarkable properties in reducing the frequency of the pulse. This is a property which renders it particularly valuable in diseases, and for which it has been prescribed in fevers, with extreme rapidity of circulation, and in inflammatory affections of the lungs. It diminishes the pulsations of the heart and arteries twenty or thirty strokes in a few hours, simply by its action upon the brain and nervous system. Its powers, I am induced to think from some trials with it, will be found of more value in chronic affections, and as little has been stated of its application to these cases, I shall be excused for calling your attention to some of these diseases, in which, after a moderate experience, I am disposed to think it will prove a valuable agent. These are, first, affections of the head, and all the kindred complaints connected with undue excitement of this organ. These diseases are exhibited in every variety of form, from dulness of the faculties, with heaviness, stupor or oppression, to those more exalted conditions of the same organ, as manifested in extreme nervousness, keen sensibility, and finally, perverted reason. These various grades of excitement are connected with undue vascular action, and this again with organic structure. Any article which operates so efficiently upon the vascular system, must have its influences first exerted upon the seat and centre of all the vital operations of the body, and it is to sedation, then, that we are to ascribe its beneficial effects in the diseases I am about to bring to your notice.

The simplest disorders of the head in which its good effects are manifested, is in vascular fulness of this organ, particularly manifested in the advanced periods of life. The symptoms following upon this state of the brain, and giddiness, dulness of the mental faculties, constant headache, dimness or darkness of vision, the movements of the body being much circumscribed. For the removal of these symptoms I have found the tincture, largely diluted with water, and taken at regular intervals during the day, very effectual. The form of administration is the following: ℞. Tinct. verat. vir., gtt. xxv; aqua, ℥ vi; ♏. The dose is ʒ ij to ʒ iv every two or three hours until relief is obtained. The doses operate favorably, often without any sensible evacuation, sometimes only to give regularity to the bowels. The next class of cases are those connected with a greater degree of vascular action, and the first that I shall bring to your notice is epilepsy, and unconnected with any mechanical derangement, but a nervous affection, as when it is brought on by grief or mental disappointment.

In a case of this nature, the same formula for its administration as already mentioned has been efficacious in diminishing the frequency of the paroxysms, and of rendering them milder. From a daily recurrence, they have been suspended for a week; and from a violence in their action, attended with convulsive contraction, they have been reduced to simple unconsciousness, of short duration. Upon their recurrence there is no foaming at the mouth, nor is the patient thrown down, but the paroxysm occurs while standing, and rapidly exhausts itself. The only sensible effects, after a month's use of the article, was to impair the appetite, and to give regularity in the operation of the bowels. I prefer presenting the results of this article in a condensed form, rather than in detail.

Another class of diseases of the same organ is that characterized by extreme nervousness, or such exaltation of nervous excitement as borders on mania. We recognize in such subjects extreme vivacity, with alternate dejection of spirits, cephalalgia, frebricula, impaired digestion, coldness of the extremities, sallow complexion, subjects as described seem to be on the verge of insanity, and, without proper care, pass rapidly into all its wildness and extravagances. Tem-

perance alone holds the reins, and keeps the system from rushing headlong on destruction. With this, so valuable a mentor, our medicine strongly coöperates, and, in a case from which my description was drawn, was found highly useful in repressing exuberances and extravagances of feeling and conduct, which gave to those about the patient the impression of madness approaching, while it calmed and relieved the bodily indispositions. The same form of administration was pursued as in the preceding.

In one other form of disease, of a cerebro-spinal character, viz.: crural neuralgia of the lower extremities, the virtues of this article have been tested. This disease has the misnomer, rheumatism, too frequently applied to it, which it too often resembles in its worst features; and without some suitable and reasonable remedy, the patient is doomed, I might say, to a life of confinement and of suffering. I will not detain you by referring to its causes; in general terms, it is produced by whatever gives rise to inflammation of the spinal column, particularly about the lumbar portion, as lifting heavy weights. After an extensive employment of many articles, I have derived almost immediate relief from the veratrum, the pains in the limbs being greatly mitigated, the uneasiness of the back relieved, the power of locomotion regained in a very short time after commencing the use of it.

Another form of disease of rather different character, but in which, from its reputed operation, it may be considered useful, is in cancerous affections. An article which, from its sedative influence upon the human system, could reduce the pulsations of the heart and arteries twenty, thirty or forty strokes in the minute, in the course of sixteen or eighteen hours, must be considered a useful agent in this disease, attended, as it is, with an exalted state of nervous sensibilities. It was a very suitable subject for experiment, and without any authority, but with an eye to its reputed qualities, I considered that it might be advantageously resorted to. Accordingly, in a case of carcinomi uteri, where the sufferings of the patient were of the usual intense character, I have succeeded in affording very great relief, and this without any of the narcotism induced by the preparations of opium. A great change has been brought about in the sufferings and condition of the patient, and from many painful hours by day and sleepless ones by night, she has come to enjoy comparative ease, the paroxysms of pain being less frequently renewed, and no night passing without quiet sleep of from four to six hours. The form of administration is that already detailed: . Tinct. verat. virid., gtt. xxv or xxx; aqua, ℥ vj; dose, ℥ ss, taken every two or three hours. This quantity was given daily, without producing any great uneasiness of stomach; and when, from long use, its powers began to subside, they have been subtained by the addition of ℥ j to ℥ jss of laudanum to the mixture, and this quantity taken in the twenty-four hours. By this compound unwonted energy has been given to the mixture, an effect too great from the amount of laudanum added, so much so, that for the past forty-eight hours comparative tranquility has prevailed, and many hours of sleep obtained. In a disease of such a character, any addition which can be made to our resources in counteracting its malignant disposition, is a duty we owe to our patients, and a great relief to the physician; and it is from the satisfaction I have felt from this single trial that I have been induced (thus precipitately, as may be thought) to proclaim its efficacy. To alleviate pain is as much the province of the physician as to cure disease; and since in many it is all the relief we can aim at, and fate decrees that we must die, it is no less the duty of the physician to soothe and soften the horrors of its approach, and let the passage at least be easy and serene.

These are the few diseases in which I have tested its operation, and they are of a different character from any in which it has been recommended. I may be only on the threshold of inquiry, and it is with a view to elicit from others more information, or a confirmation of my statements, that I have been induced, rather hurriedly, to bring them to the notice of the Association. I have consumed, in these experiments, between two and three ounces of the tincture, and have not known any unpleasant effects produced from the use of it. From my present experience and impression, I am disposed to think that it will always occupy a prominent position in the materia medica. As a local application I have used the white hellebore in scabies, herpes, and kindred affections. I must be excused recording its efficacy in removing a fungous growth from the inner part of the arm, at the elbow-joint, of a warty character, of the size of a hickory nut, which had existed twenty-five years. The patient was of very advanced age, bordering on ninety years; was much annoyed at this morbid growth, not only from the size of the tumor, but from its offensive odor; the profuse discharge irritating the adjacent skin, the necessity of frequent dressing and cleansing (but for her age and extreme aversion to the knife, excision would have been practiced). This morbid growth, after the trial of many articles, was removed by being powdered, several times a day, with the root of the white hellebore. Its effect was to cause the immediate cessation of the discharge, and a gradual exfoliation, I may say, from the whole surface of the tumor, until it was finally entirely removed. To have removed in a short time, by such an application, what the knife seemed only capable of accomplishing, seemed a triumph worthy of record, and must plead my apology for its introduction.

CONTRIBUTIONS TO LARYNGOLOGY.

Read in the Section of Laryngology and Otology, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY EPHRAIM CUTTER, M.D., LL.D.,
OF NEW YORK.

1. AN OLD CASE OF THYROTOMY, 1866. SUCCESSFUL, 1889.

In 1866 I performed what was called thyrotomy modified—that is, by the disuse of tracheotomy or tube for the removal of a large sarcoma which nearly filled the calibre of the larynx. It was necessary to make new vocal and breath bands by the scissors. An account was published in the *American Journal of Medical Science*, December, 1866. This case is living and phonates well. She can also sing a few notes of the middle register. This case has also an interest in the light of a recent report of the results of thyrotomy by Dr. Hoppa, of Warrburg. He collected 104 cases done since 1879. Four cases died after the operation; 100 cases were cured, as far as the operation was concerned. He found eighteen recoveries with normal voice out of thirty-eight. Sixty per cent. of Dr. Hoppa's cases had normal voice, and some sang.

The youngest case that the writer operated on was a child of twenty-two months. Here a tracheotomy tube was used. The growth was very voluminous, and new vocal and breath bands had to be made by scissors. Voice was restored, but death from cholera infantum followed soon after. The writer agrees with Dr. Hoppa that the operation is desirable.

2. TWO CASES OF FIBROID ENLARGEMENT OF THE ARYTENOID CARTILAGES.

Case 1.—Résumé after twenty-one years' lapse since treated. Permanent recovery.

In February, 1868, Prof. H. M. Field, M.D., of Dartmouth College, placed under my care Mrs. G. H. Jones, of Newton, Mass. She was a middle-aged lady, apparently in good health, but was annoyed by irritation in the throat, cough, and difficulty of swallowing; her health otherwise was good. On examination I found the throat and larynx healthy, with the exception of the left arytenoid cartilage, which stood up with its tip enlarged, obovoid, the long diameter vertical, side diameter half an inch, and about three-quarters of an inch long. It resembled very much the hard rubber and ivory bougies which are used to dilate the strictures of the œsophagus. The surface was covered with a faintly colored mucous membrane, through which shone the white, pearly, lustrous body of the enlargement, very much as the cartilages of the ribs appear at an autopsy.

It appeared to be of a cartilaginous, or what I now call a fibroid structure. There was no evidence of tuberculous disease, though at that time I had not learned how to detect consumption in the blood as I do now; still, I am not prepared to say it might not have been tuberculous. In this case I was confronted with a lesion I had never heard of, and was thrown on my own resources as to treatment. I gave the matter considerable thought, and being influenced by the good results of free incisions in tissues in the other parts of the body, which were indurated to that extent that I then felt as if foreign substances were imbedded in them, I resolved to try the effect of free incisions upon the growth.

Not satisfied with the knives I had, because they were not simple enough, I had one made by Codman & Shurtleff, the whole length of which, handle and all, was 10½ inches; length of handle, 3 inches; length of shaft of knife, which was rounded and tapering, 5 inches. At the distal end of the shaft there was a piece 2½ inches long joined to the shaft by an angle of 110°. The upper part of the short piece was round and cylindrical; the lower part was flattened in a direction parallel to the long axis of the instrument; on one side near its point it was flat, and on the other beveled in two planes, coming down to a blunt, flattened point.

With this knife I made free scarifications under the laryngoscopic mirror, so that one or two mouthfuls of blood would be expectorated at each sitting. There was so much relief experienced at these sittings, that the patient was willing and ready to accommodate my best judgment. The sittings averaged two a week, if my memory serves me rightly, for three months. The enlargement began gradually to grow less, till finally it was as small as its neighbor on the other side.

In a letter dated Newton, January 9, 1889, she writes: "Since then" (the operation) "there has been no return of the trouble. Of course when I take cold my throat is a little sensitive. Very truly yours, Mrs. G. H. Jones."

Case 2.—Not long after the first case was treated, though I am not sure about the date, an Irishman, Currier, thin, nervous, about 25 years of age, applied to me about difficulty in his throat. He was bothered about swallowing, and said he had a valve growing in his throat which sometimes choked him. His circumstances in life were such that he was not well fed or nourished, and he was impecunious, lacking, of course, the care which case 1 had, whose every want was supplied with loving attention. If anything, this growth was slightly larger than the other, more globular and movable on its base, so that it must have interfered with the respiration, especially during sleep. Indeed, his sleep was broken so much that he began to run down.

Both of these patients could swallow, but with some difficulty. Taking advantage of the experience gained in case 1, the growth was subjected to the same treatment; but owing to the mobility of its base and, I think, the increased density of

its substance combined, I was unable to penetrate so deeply as in case 1; nor could I procure so much blood from one scarification as in the other case. As the man grew weaker his difficulty was increased, so much so that I feared he would lose his life by strangulation, and with the consent of the patient and friends I decided to perform tracheotomy and introduce a tube. I did so. My assistants at the operation wished me to use ether, while I preferred chloroform. I told them that the moment he inhaled ether the secretions of the salivary and parotid glands would be started to such an extent that when he became insensible the secretions would run into the larynx, cause a spasm of the glottis, and the patient would suffocate instantly, just as people drown from the inhalation of water into the larynx when they are submerged. But they refused to assist me unless ether was employed, and as I did not see how I could do the operation without their assistance I yielded to their influence; but what has been described as likely to happen, did happen in exactly that way. The man took the ether well, but the moment the secretions of the oral cavity ran into his larynx he ceased to breathe instantly and, curiously, his heart stopped beating. I was then obliged to make my incision without regard to blood, cutting down in great haste, feeling my knife with my finger, to know where I was cutting, laid bare the rings of the trachea, separated the tissues with my fingers, and cut through. In consequence the blood went into the trachea. I put the tube in, but that filled with blood, and having no other means at hand I placed my lips on the tube and sucked the blood out, and the respiration was established, greatly to the gratification of all present. For myself, I told the gentlemen I could have done the operation *secundum artem*, but was obliged to do the best I could. I would not recommend the use of ether in such circumstances. The case went on like other cases of tracheotomy. The man was very comfortable; the growth seemed to be arrested by the relief given to the air passages. He remained under my care for about three months, when he went to Ohio on a visit. There he met some medical gentleman who, I think, was not a laryngologist, for he told the patient that the tube was of no use and should be removed. He removed it, and very soon, I was told, the man died. In this way I lost my patient and my tube.

Remarks.—If I were to meet such cases again, with the scarification, I would use the Salisbury plan of diet for fibroid tumors, and I might apply the galvanic current. In my opinion these lesions are *trophopathic*, and I think that trophopathy (*trophos*, food, and *pathos*, disease) should be the basis of treatment for all throat diseases, organic or functional.

3. A NEW NAME PROPOSED FOR THE VENTRICULAR BANDS.

The writer has studied his own larynx since 1862, inspecting his vocal bands, ventricular bands, arytenoid cartilages, during phonation, cantation from F below in the bass cleff to G above in the treble cleff, and during laughing, coughing, sneezing, respiration and deglutition; but it was not till 1884 that he had a clear idea of the function of the ventricular bands, more commonly called "false vocal cords." To be sure he had traced the alarming, clangorous, peculiar cough in spasmodic croup to the thickening, probably almost œdematous, condition of the ventricular bands. A young lady about 18 years old, apparently well, would at times exhibit this "croupal" cough. When this cough came on in school it excited, at first, alarm in teacher and scholars all over the room. When the cough was produced under the laryngoscope, the contact of the ventricular bands was trifid, dividing the ventricular plane into three equal parts, like a circular disc cut into three equal portions. This was a unique curiosity, and seems to explain the peculiar tussive cough by the chronically swelled condition of the ventricular bands.

The ventricular bands are the chief physical agents in producing cough by holding the breath back and fixing the diaphragm so that it presses the air forcibly against the closed ventricular bands, which, suddenly and instantly relaxed, allow the air to rush forth as if projected from a weapon, and thus the explosive sound is produced which we call cough, and the outgoing air expels whatever secretions may have been borne upwards by the ciliæ of the bronchial and tracheal epithelia to where the air can reach. From this function in cough the ventricular bands might be called "cough" bands or chords.

But their chief function in health is the holding of the breath. Professor C. W. Emerson, Ph.D., principal of the Monroe School of Oratory, Boston, lately stated to his pupils "that for many years he had taught that the vocal cords were the chief agents in holding the breath, and not the rigid setting of the abdominal muscular walls and diaphragm; that in normal breathing the vocal bands close for an instant during expiration, and the action of the diaphragm and of the abdominal muscles thus arrested forces the inspired air into the apices of the lungs, expanding them in a normal manner and supplying fresh air, and that thus the full development of the upper chest was obtained and maintained in speaking and singing; that in unhealthy respiration the vocal cords did not close and hold the air, and that hence flat, weak chests and weak voices were the natural consequences of the unresisted outgo; that when he came across some articles on the subject[1] he found it was not the

vocal cords, but the ventricular bands, that did this work of arrest." After this statement the writer demonstrated on himself the fact that the ventricular bands close in order to hold the breath during phonation, cantation, etc., and that, so far as can be seen, the vocal bands have a rest during this function of holding the breath, which is of the greatest importance to speakers and singers who wish to do efficient work, and, to bring the subject home, to the medical man who reads a paper and to the audience who is listening to him.

In 1884 the writer appealed to professional laryngologists to give a new name to the false vocal cords, or ventricular bands; but as he has heard of no response to this appeal he ventures now to suggest some names for approval, premising that the word "chords," or "cords," is not expressive enough of the situation; for to do so one has to imagine a cello D string about 1½ inches long, split longitudinally into two equal parts, a section of the end being a semicircle, the rounded side of the string forming the band, and the squared side prolonged or towards the walls of the larynx. Imagine a string like this. How little music it would make! The fact is, the nearest analogy to the vocal bands is found in the lips of a cornet player, stretched over the embouchure of the mouth-piece; only the vocal bands are joined in front and opened behind, while the lips of the cornet player are joined at each side. The vocal bands are made tense by the stretching backwards of the arytenoid cartilages, etc., while the lips are stretched over the circular ring of the mouth-piece. Players speak of "making a lip," but singers and speakers "make their glottis" instinctively.

The ventricular bands are ill named, because the ventricles they form with the vocal bands are accidental things, and not important functions of which we have spoken, to wit: the proper holding of the breath in respiration, phonation, cantation, sneezing, etc. Suppose we follow the nomenclature "vocal bands," then we might call the ventricular bands (1) breath bands, (2) breath holders, (3) breath cords, (4) breath valves, (5) breath lips.

If, instead of the vocal bands for the true vocal cords, we say "voice bands," then the writer would prefer for the false vocal cords, "breath bands," until some one else favors us with a better name; but as false vocal cords have gone, so shall ventricular bands go, as being inexpressive of the functions of the important mucous membrane, red-colored processes or bands, that form the middle of the three valves of the larynx, to wit: (1) the epiglottis, (2) breath bands, (3) voice bands.

The closing of one after the other, beginning with valve 3, Dr. Frederick Semeleder, now of Mexico, showed beautifully in 1862, during the function of swallowing.

The Ariston, Broadway and 55th street, June, 1889.

[1] (*a*) Gaillard's Medical Journal, October, 1884; (*b*) Transactions Music Teachers' National Association (America), 1887; (*c*) Transactions Ninth International Medical Congress, 1887, vol. iv, pp. 105-111.

LAPAROTOMY FOR PERFORATING TYPHOID ULCER.

BY REED B. BONTECOU, M.D.,
OF TROY, N. Y.

On October 26, 1889, I was called in consultation with Dr. St. John, of Centre Brunswick, to see Arthur P. Dater, a farmer, æt. 27, living near Millville, some miles from Troy, in a healthy district, and with comfortable surroundings. I learned from his physician, Dr. St. John, that he had been suffering from typhoid fever for some forty days past, having had a relapse after the first twenty days of illness, and that at two A.M. on the day of my visit he had been suddenly seized with symptoms of peritonitis. We found him in a state of moderate collapse, pulse very frequent, skin bathed in perspiration, abdomen tympanitic, tense, and an absence of liver dulness. Intestinal perforation was diagnosed, and the chances of life with or without operation fairly stated to his family and himself, and with their consent and his own I proceeded, about 7 P.M., with artificial light, with strict antiseptic precautions, to the operation, assisted by Dr. St. John and my son, Dr. R. Brinsmade Bontecou. A median incision, three or four inches in length, was made, and on opening the peritoneum a gush of gas, followed by a quantity of brownish, muddy serum, escaped. The small intestines were distended and vividly red; the distal portion of the ilium was at once sought for and readily found, and presented a circular perforation of about three-sixteenths of an inch in diameter in one of the Peyerean patches, some four or five inches from the ileo-cæcal valve, through which gas and feculence were escaping. Several of the patches in the lower twelve or eighteen inches of the intestine were much enlarged and thickened, and presented bright red spots on the peritoneal surface, as if threatening perforation. But no other openings were found, and I turned in the ulcerated patch in a transverse fold, being unable to make one longitudinally on account of the thickened mass of glandular tissue, which, if treated in that manner, would have diminished the lumen of the intestine too much. The rupture was covered in by a Lembert continuous suture, and after irrigating the peritoneal cavity thoroughly with boiled water, I closed the wound around a large sized *rubber* drainage-tube (having no glass ones with me), which I had doubled, the bend being within the cavity. Iodoform was freely dusted

over external wound, and a dressing of antiseptic gauze covered the whole.

His condition after the operation was as good as when he was put on the table, and we returned several miles to our home. My son, who was much interested in the case, volunteered to return and remain with him during the night, his attending physician being unable to do so. After an absence of four hours, consumed in the journey to and fro, from the bedside, my son reported finding him with a better pulse, free from pain, and in a better general condition than after the operation, and promised success. He became mildly delirious towards the early morning, and though hypodermics of morphine were used, he managed in some way to loose his dressing and pulled out the drainage-tube, probably tearing open the repaired intestine, for soon afterwards he suddenly collapsed and died. My son was, unfortunately, not provided with instruments to repair the damage. An autopsy was refused. I should like to add to the foregoing that the intestine in the vicinity of the perforation, and below that point to its termination, was covered with a layer of organized lymph, indicating that the perforation must have been more than seventeen hours old. The appendix was examined and found healthy, but red, as were all the intestinal surfaces.

The first case of perforating typhoid ulcer that I operated upon was in October, 1887. The man was in much more profound collapse, the accident having happened some 36 hours at least before I saw him, and he did not recover. But in this case the shock was less and the prospect of a successful recovery fair, for his condition four hours after the operation was better than before it, and shows that the procedure did not impair his condition. Ether was the anæsthetic employed.

82 4th Street, Troy, N. Y.

MEDICAL PROGRESS.

ANTISEPTIC PROPERTY OF COFFEE.—It has been lately shown by Lüderitz, from a series of experiments conducted by him in the Berlin Institute of Hygiene, that coffee as a drink (infusion) possesses very decided antiseptic properties. Several different forms of bacteria were experimented on, and their growth was found in all cases to be interfered with by the addition of a small quantity of coffee infusion to nutrient gelatine. In pure infusion the bacteria were rapidly destroyed. The question as to what constituents exercise the antiseptic action cannot yet be answered. The caffein is certainly only active to a slight degree, the tannic acid to a greater extent, but probably of greatest importance are substances which are formed during roasting. It is interesting to note that a cup of coffee left lying in a room remains almost free from microörganisms for a week or more.—*Berlin Klin. Woch.*

TREATMENT OF A COMMON "COLD."—Salicylate of sodium in free doses gives as satisfactory results in the treatment of "bad colds" as it does in cutting short tonsillitis. Sodii salicylatis, ℥ss; syr. auranti cort., ℥ss; aquæ menth. piper, ad, ℥iv. M. Sig. A dessertspoonful every three or four hours. A dose every three hours until a free specific influence of the salicylate—tinnitus aurium—is observed—will so far control the symptoms that the aching of the brow, eyes, nose, etc., will cease. The sneezing and "running from the nose" will also abate and will disappear in a few days, not leaving, as is usual under other treatment, a cough, from the extension of the inflammation to the bronchial tubes.

Apropos: DR. PHILPOTS writes the *British Medical Journal* that when sneezing manifests itself, before any inflammatory action has been established, a single local application of salicylic acid to the irritated lining membrane of the nose will be quite sufficient, in the majority of cases, to abort a common cold. The formula suggested is: Sodii salicylatis, ℥iv; acid. boracis (pulv.), ℥j; cocainæ hydrochlor. gr. xxij. M. Mix by agitation, not in a mortar. Snuff, or draw into the nose, or preferably, use with insufflator.—*Memphis Med. Journal.*

PRACTICAL ASEPSIS.—*Asepsis of the Hands.*—Frequent washing of the hands, with or without antiseptics, irritates the skin, producing redness and chapping. It is therefore advisable, after washing and drying the hands, to rub them with one of the following pomades, which are recommended by PROF. LIEBREICH:

1.	Lanoline	5 grm.
	Vanilline	0.01 "
	Essence of rose	1 gtt.
2.	Lanoline	100 grm.
	Parafine	25 "
	Vanilline	0.01 "
	Essence of rose	1 gtt.

Asepsis of the Sick Room.—SEVESTRE advises the use of the following solution, which may be sprayed or evaporated by boiling:

Thymic acid	5 grm.
Carbolic Acid	10 "
Alcohol	100 "
Water	885 "

Asepsis of Utensils and Instruments.—It is sufficient to dip utensils and instruments in a boiling solution of carbonate of sodium (30 grm. per litre). The same solution may be used to disinfect sputa and to clean cuspidors and vessels.—*Jour. de Méd.*

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MIDWIFERY AND THE MIDWIVES.

The practical results achieved by the application of asepsis and antisepsis to obstetrical practice is one of the greatest triumphs of modern medicine. No fact has been more frequently and forcibly emphasized than this, and the triumph thus gained is all the more welcome because it comes with relief to the very sufferers to whom our sympathies go out most powerfully,—to child-bearing women.

Prior to the advent of our present methods of treatment, in many parts of the world, and these the very centres of the highest civilization, child-bearing had become a veritable curse to womankind, at least to those unfortunates who were obliged to take refuge in hospitals. In one of the largest hospitals of the world pregnant women learned to shun certain wards as they would charnel-houses. "Often the most heartrending scenes were witnessed when kneeling women wrung their hands and implored a release from surroundings which they knew to be pestilential." In this same department "lying-in women with pulse-beats so rapid that they could not be counted, with bellies bloated and with tongues parched by the dreadful puerperal fever, protested almost with their last breath that they were *perfectly well*, in order that they might be spared from medical treatment that they had learned was but the precursor of death."

Such were the scenes and such the condition of affairs at a time when puerperal fever destroyed more people than cholera and small-pox combined. But antisepsis has changed all this, and now, *mirabile dictu*, the lying-in patient is actually safer in one of the best conducted hospitals than she is surrounded by her friends in her own home and provided with the average quality of medical attendance. This is not because the hospital patient encounters fewer dangers in her surroundings, but simply because the protection afforded her against danger is more nearly adequate to the exigencies of the situation. In the hospital, cleanliness and real antisepsis are the daily lessons taught, and the hospital is the place where they are most readily learned. Simple as these lessons are, there are none more difficult to inculcate in the case of refractory pupils, and all skeptics and all people of moderate intelligence are refractory in this respect. Even with the most painstaking care and watchfulness hospital authorities experience very great difficulty in carrying out the minutiæ of antisepsis, without which there is no guarantee whatever of success.

The medical students of to-day are thoroughly drilled in the important field of bacteriology, and thus they become intelligent and willing pupils when it comes to the application of the principles involved in the treatment of wounds and the conduct of labor. With nurses the task is a more difficult one, for with no practical acquaintance with the vital phenomena, the bacteria, they often find it an ungracious task to regulate their habits by rules which scarcely appeal to their reason, and which require them to modify almost their entire mode of life.

There are still other classes of individuals who are difficult subjects to deal with. First there are the good, hard-headed, common sense doctors who studied medicine before the upstart bacteriologists were born—men who never encountered a bacterium in a medical practice of fifty years, and who would have little respect for a micro-organism unless it could be demonstrated to be supplied with claws and poisonous fangs. Some of these practitioners are excellent obstetricians and surgeons, for the most part, but when they do lose a patient from septic infection they have no difficulty in convincing themselves that he or she died from causes quite aside from those of microbic invasion; whereas not infrequently the skilful pathologist is able to convict such a one from the testimony of his own mouth. Then, again, there is the class of practitioners who

freely admit the teachings of bacteriology and endeavor to follow its precepts, but do so in a slipshod manner that is entirely inadequate; or, after employing the most approved methods of disinfection, vitiate all their work by a single *lapsus*.

Formerly almost any intelligent and dexterous physician was regarded as good enough to assist at a surgical or obstetrical operation, while to-day many such would not even be admitted to the operating room, from the operator's fear that he would nullify the effects of otherwise adequate antiseptic precautions.

What, then, shall we say of a class of individuals who are yearly entrusted with the lives of tens of thousands of cases which require for their successful management almost as precise and delicate methods as those employed by the surgeon who opens the peritoneum, and who are, nevertheless, in a large measure utterly ignorant of the greatest dangers that beset their charges? These individuals are the midwives of our own country. Bacteriology has set its seal upon the physician, upon the surgeon, and upon the obstetrician, but we have no evidence that its influence has been felt by the midwife. In most of the European States the importance of this subject has long been recognized, and ample protection has been afforded the public from the danger of infection at the midwife's hands. These women are first carefully trained under governmental direction and then placed under the supervision of competent authority. Their minutest duties are accurately prescribed by printed instructions, which they are bound by heavy penalties to follow to the letter.

In most parts of Europe a much larger proportion of obstetrical practice falls to the hands of midwives than here; the proportion, indeed, is often as great as 75 per cent, and the control of midwives is in one sense a more important subject in Europe than it is in the United States. But it is certainly important enough everywhere to demand our most thoughtful consideration, and it is hoped that it will not be long before our midwives are required to show a much higher degree of proficiency in their art than is the case at present. It would seem also to be a very simple and useful procedure to place in the hands of each midwife printed instructions regarding her duties toward those to whom she offers her assistance.

MEDICAL FEES.

Can there be any fixed rate of compensation for any and all kinds of service to the sick or injured? We trow not, for there are many reasons which operate against such a desideratum. First of all, there can be on the part of the profession no organization approaching the nature of a "trust," competition being too sweeping and too general. Much of the aid also is supplied by the State or corporations, and very much more is gratuitously rendered for the sake of acquiring skill or reputation. Add to these demoralizations—we use the term in its least offensive commercial sense—the unintended charities of the younger members of the profession, who are obliged to take greater risks in the matter of compensation, and we continue adding more figures to the over-long list.

Overcrowding, about which so much is written, cannot well be controlled except by the survival of the fittest, particularly when the aspirant for emoluments modestly prefers himself to his neighbor. In this connection, every physician must reflect that his calling is a personal one, and as such his work can neither be divided nor delegated. The poor employ him of necessity, and the rich are willing to pay no more than the market rates. The exceptions are in the case of the few who have a national reputation, and whose resources are drawn from an infinitely larger constituency.

There is a maxim of political economy that "wages are the same," the surplus being the increment for extra skill, reputation and other factors which do not now occur to us in the summary. The chief gain, however, is in the matter of reputation, after which the charlatan struggles so persistently. He of all others must needs make haste, for the bubble invariably bursts, the calamity being that honesty is the real sufferer in the shape of a general distrust of all science. But this is law, and as the lawyers say, therefore only an approach to justice. As such we accept it.

More frequently than prudently, the statement is made to patients that what the poor cannot do the rich must be made to do—in other words, that the rich must be made to pay for the poor. All well enough, but for the underlying immorality. Unfortunately this course is reactionary, and contrary to the best intentions, has likewise become known to the rich. In point of fact, this policy never was and never could be pursued, be-

cause every transaction must rest on a financial basis of its own. How much more rational would be the statement that the services are intrinsically worth thus much—the rebates are mere concessions to charity, friendship and personal goodwill. The braggarts always get the largest fees and have the most grateful patients, but somehow never make a show of their investments. In brief, where can there be the necessity for an appeal to class prejudices for the sake of covering up small balances for work done much below its intrinsic worth. The book-keeper is not known who publicly avows that he robs Peter to pay Paul.

Let it at once be conceded that the millionaire buys his commodities at the market value, and is not unusually lavish with his "tips," and must we say it, that competition keeps the seller within reasonable bounds. As for the princely incomes to be found within the profession, they are but few. Like royalty itself, the princes themselves dwell aloof, and the search for them would be as bootless as the Indian's chase after the setting sun.

THE ROYAL COMMISSION ON VACCINATION.

A preliminary report has been published by the Royal Commission on Vaccination of which LORD HERSCHELL is chairman. This report contains the testimony of SIR JOHN SIMON, the former chief medical officer of the Local Government Board, DR. WILLIAM OGLE, of the Registrar General's Office, DR. THORNE THORNE and others, in defense of the existing laws under which compulsory vaccination has been carried out. The revised Vaccination Act of 1867 is the controlling measure that has given to England the power to enforce public vaccination and the ability to record the saving of thousands of lives otherwise lost by small-pox. It is this Act, also that is the object of attack by the antivaccinationists, who have representation on the Royal Commission. It is this act, also, which was left by Sir John Simon on his retiring from office, as a sanitary way-mark of the administration for which he was largely responsible. He was one of the early witnesses and gave the Commission some interesting glimpses into the condition of English society before the time of DR. JENNER'S great discovery. Mr. Simon testified that while in the eighteenth century, not everybody, took the small-pox, but everybody expected to take it at some time of their lives; some were apparently exempt from the disease early in life who contracted it when advanced in years, just as there are those, in our own time who escape measles, scarlet fever and other "children's diseases" until late in life. No class in society was exempt from the malady. The presumption was that royalty would feel the clutch of small-pox not less than the peasant. The testimony of Mr. Simon showed, for instance, in the family of William III, that both his father and mother died by the disease, also his wife, his uncle the Duke of Gloucester, his cousins, the elder son and the youngest daughter of James II, while he himself had a very severe attack of it. In Austria, also, the force of the disease fell crushingly on the Court: the Emperor Joseph I died by it, as did two empresses, six archdukes and archduchesses; an Elector of Saxony died from it; Bavaria also lost an Elector, and France a King and a Dauphin; Sweden a Queen, and Russia an Emperor. In the latter part of the last century, the deaths by small-pox amounted to little less than 10 per cent. of deaths from all causes; or stated in the proportion to the population the death-rate was 305 per million. Since the passage of the compulsory acts this death-rate has fallen, with many fluctuations, and in the last decade it is stated 54 per million. In 1889, in England and Wales there were 517,936 deaths from every cause, but only 28 were registered as due to small-pox: in London only one death was recorded from that cause in that year. Looking at the effects of small-pox on children in the period that preceded the compulsory acts, it is found that the rate of mortality was 1,617 per million, while later it was only 94. But in the case of persons over forty-five years of age there has been an increased rate from variola. Hence it appears that those who were born before the passage of the laws constitute the only class that has not shared in the immense decline in the mortality, which is not far from being one-sixth part of what it was formerly. Testimony in regard to the protection afforded by vaccination to the nurses who serve in small-pox hospitals was adduced, showing that they enjoy absolute immunity from that disease, although brought into contact with it in its most virulent form; compared with them, the nurses at the fever hospitals suffer greatly both in cases and in deaths by fever. Testimony was

given by DR. JOHN H. RAUCH, of the Illinois State Board of Health, concerning the status of vaccination in this country. He showed that although vaccination is not actually compulsory in some of the States, yet when small-pox becomes threatening, vaccinations are enforced in a wholesale fashion that is calculated to startle the antivaccination partisans of England. After the great fire at Chicago, he stated, there was great suffering, upwards of 80,000 persons were rendered homeless and were provided for in a camp. Small-pox was hovering about and a general vaccination was decided upon, and as a result 110,000 to 120,000 persons were vaccinated or revaccinated, in the camp and vicinity. Other instances were given where indirect compulsion has been applied to schools, and also in regard to immigrants with exceptionally beneficial results. In reply to the contention of the antivaccinationists that the diminished suffering and mortality from variola is really due to the general sanitary improvement of the times, Dr. Rauch gave it as his opinion and experience that sanitation has practically nothing whatever to do with either the spread or the abatement of the infection. Vaccination and isolation are the two important matters for the protection of the people; and without the due observance of these two points the people's best line of defences will have been deserted. The Commission is still engaged upon the inquiry.

This, the first, installment of the Royal Commission's work is of great value. If the remaining portions of their report shall be as strong in the defense of the much attacked vaccination, the results will be very unwelcome to those who have set the investigation in motion.

EDITORIAL NOTES.

HOME.

ASSOCIATION AND SOCIETY MEETINGS.

THE AMERICAN NEUROLOGICAL ASSOCIATION will hold its next annual meeting in Philadelphia, on June 4, 5 and 6, 1890.

THE IOWA STATE MEDICAL SOCIETY will meet at Des Moines, April 16, 17 and 18.

THE MEDICAL SOCIETY OF THE MISSISSIPPI VALLEY convenes at St. Joseph, Mo., March 20 and 21.

THE NEBRASKA STATE MEDICAL SOCIETY meets at Beatrice on May 13.

THE ILLINOIS STATE MEDICAL SOCIETY will meet in Chicago, beginning May 6, 1890.

AMERICAN MEDICAL ASSOCIATION.—The forty-first annual session will be held in Nashville Tenn., on Tuesday, Wednesday, Thursday and Friday, May 20, 21, 22 and 23, commencing on Tuesday at 11 A.M. The addresses will be given on "General Medicine," by Dr. N. S. Davis, Chicago, Ill.; "General Surgery," by Dr. Samuel Logan, New Orleans, La.; "State Medicine," by Dr. Alfred L. Carroll, New York, N. Y.

ADDITIONAL APPOINTMENTS.—The following additions have been made to the Faculty of the New York Post-Graduate Medical School and Hospital: Charles B. Kelsey, M.D., Professor of Rectal Diseases; Charles H. Knight, M.D., Professor of Laryngology and Rhinology; Reynold W. Wilcox, M.D., Professor of Clinical Medicine; Dr. S. Lustgarten, formerly Privat Docent in Vienna University, Instructor in Syphilis and Dermatology.

A CREDITABLE APPOINTMENT. — Dr. H. J. Brooks, of Dixon, Ill., appointed to the position of Superintendent of the Insane Asylum of Northern Illinois at Elgin, made vacant by the death of Dr. E. A. Kilbourne, is a man every way qualified for that important position. His culture and thorough practical experience eminently entitle him to the place, and we bespeak for the Institution an able supervision under his administration.

PRESIDENT OF THE NEW YORK STATE MEDICAL SOCIETY.—Dr. William Warren Potter, the newly elected President of the New York State Medical Society, comes of a medical family. His grandfather, father and son and two uncles have been or are members of the profession. He has been for some time one of the editors of *The Buffalo Medical and Surgical Journal.*

CREMATION ADVANCING IN ENGLAND AND ON THE CONTINENT.—The number of cremations at the Woking Crematory is increasing. In three years, 1884 to 1887, there was an annual average of eight. There were twenty-six in 1888, while last year there were forty-six. During the present year there have been several every week. At the new crematory at Paris there were thirty-five ordinary cremations in 1889, but the number of

bodies of still-births, unclaimed paupers from the hospitals and anatomical residuum is such that the incineration is going on almost constantly. At Rome, over 200 cremations were practiced in 1888, an increase over any previous year.

MEDICAL LEGISLATION IN ALABAMA AND FLORIDA.—The Medical Practice Act of Alabama has been found to be ineffective for the prosecution of illegal practitioners, by reason of a failure in the enactment to prescribe a penalty. This omission will probably be remedied by the Legislature of the current year. The Medical Act for the State of Florida is also said to have a defect in that it does not specify that an examination in the practice of medicine shall be required of candidates. This oversight it is thought may be obviated by making the examination in therapeutics broad enough to embrace the omitted branch.

DR. LEWIS MORRIS has been appointed a member of the medical staff of the Pennsylvania Hospital, to succeed the late Dr. James H. Hutchinson.

DR. O. W. HOLMES says it is not true. The poet-physician has had it brought to his notice that a learned small girl of Boston has spoken of him as having been for many years a professor of monotony at Harvard University.

THE STARLING MEDICAL COLLEGE.—The forty-third session of the medical college at Columbus, Ohio, was terminated on March 6, a class of thirty-nine receiving diplomas in medicine.

THE BELLEVUE HOSPITAL MEDICAL COLLEGE held its annual commencement on the 10th inst., graduating a class of 144 members, said to be the largest ever graduated.

FOREIGN.

MEMORIALS TO PROFESSOR BOTKIN. — The memory of the late eminent Russian surgeon, Dr. Sergius Botkin, will be perpetuated in a two-fold way. One of memorial will be by means of a publication bearing his name; the weekly journal founded and conducted by Dr. Botkin, under the title of *The Clinical Gazette*, having been allowed to succumb, his son, Dr. S. S. Botkin, and other former pupils of the distinguished surgeon, have united to start a new weekly periodical, *The Bolnitschnaja Gazeta Botkina*, to be under the editorial charge of Dr. Wassiljew. The other project will undertake the establishment at St. Petersburg of a home for destitute or disabled physicians and their dependants or orphans. This memorial will take his name, it is proposed, and be known as the Botkinhaus, after the manner of that designed to perpetuate the name of the great surgeon of Göttingen by means of the Langenbeckhaus.

A FORTUNE FROM ANTIPYRIN.—Dr. Knorr, the discoverer of antipyrin has found a mine of wealth in the late epidemic of influenza, having taken in, by means of his royalties, considerably more than a million of dollars. He gets 60 cents on every ounce produced, and the drug sells at $1.40 per ounce. This, if true, would indicate a consumption of not less than forty tons of the the article by the victims of *la grippe*.

A NEWLY REPORTED EUROPEAN EPIDEMIC.—According to cablegrams from the Continent a new plague has sprung up, called nouna or noma, in Russia, Austria and Italy. It bears no resemblance to any malady of recent times. The marked feature of the attack is a stupor or prolonged sleep, of twenty-four to forty-eight hours duration. This may come on suddenly in the midst of apparent good health or may be preceded by two or three days of insomnia, headache and malaise. Fatal cases have occurred, the patient never awakening; or the stupor passes off and recovery follows. Whether the disease is contagious, or otherwise, is not yet known.

DR. MICHAEL FOSTER has been elected a member of the Italian Reale Accademia dei Lincei in the Section of Physical, Mathematical, and Natural Sciences. Among the other foreign members elected at the same time were M. Berthelot, Dr. A. Chauveau, and Professors Karl von Nægeli and W. Kühne.

DEATH FROM FRIGHT.—An extraordinary case of death from fright is reported from Rangoon. It appears that a young Eurasean lad was crossing the road, when the rumbling of the wheels of a mail car frightened him, and he dropped down lifeless, the cause of death being syncope.

CAIRO SANITATION.—A Sanitary Engineer, who has been commissioned to report on measures to improve the sanitation of Cairo, recommends a sewer system of 240 miles in extent, costing half a million sterling.

TOPICS OF THE WEEK.

SANITARY IMPROVEMENTS IN NASHVILLE.

It will be a matter of interest to our readers generally, and especially to those who propose to visit the city at the next session of the American Medical Association, to learn with what success the work of sanitary reform has been carried on in Nashville during the last few years.

We quote from the *Cincinnati Lancet Clinic* of Jan. 25, 1889, an article which it credits to the *N. Y. Medical Record* as follows:

"*What Sanitary Reform can do for a City.*—The secretary of the Tennessee State Board of Health, Dr. J. Berrien Lindsley, has prepared an article for the forthcoming Report of the Board which shows in a striking manner how the health of a large community can be benefitted by the intelligent efforts of a few active individuals, who have the support of public opinion."

The article deserves to be studied by sanitarians everywhere—if only as an encouragement to them to persevere in their apparently thankless task, often against the greatest odds.

"Dr. Lindsley's paper is a history in brief of the work of sanitary reform in the city of Nashville, which work was begun in 1874, the immediate incentive thereto being the devastation wrought by the last cholera visitation.

"The Board of Health, as organized in Nashville, consisted of the Mayor, *ex officio*, and of four physicians, chosen by the City Council, with a medical Health Officer devoted exclusively to the work. The city was then small and very poor; hence the Board moved cautiously. No extravagant system of sanitary engineering was urged, no bonds issued, no debt incurred. The first steps were the registration of deaths and thorough local sanitation. Rigid house-to-house inspection by first-class officers was steadily pursued. Health ordinances impartially and uniformly enforced. A complete sanitary survey of Nashville was taken early in 1877, a thing which had not at that time been attempted in any southern city, and, indeed, in only one or two in America. Its value can hardly be computed. Besides giving that information without which a Board of Health moves in darkness, it is an educator without equal. An intelligent and respected member of the police force, well known and well liked by all the community, visited every house and every building in detail. With suitable memorandum books he entered the results of his inquiries. Thus, in a few months, every one in Nashville was initiated into the work undertaken by the Board—that of making Nashville a city renowned for health and proof against epidemic scourges."

"During the epidemic of yellow fever in Western Tennessee, in 1878, Nashville became a veritable city of refuge, and its Board of Health had an opportunity to demonstrate the efficiency of individual isolation and perfect sanitary preparation. The heathfulness of the city at this time was so universally ascribed to the efforts of the Board of Health that the citizens gave them an ovation as a mark of gratitude and public appreciation of their services. This public demonstration was, of course, of far-reaching benefit in impressing upon the entire community the undoubted value of sanitary reform.

"In the fall of 1883 the Board of Public Works came into existence, and at once began the work of remedying the great defects made apparent by the sanitary survey. These were especially the deficient water-supply; the almost total lack of drainage; the miserable condition of the alleys; and the pressing need of improved streets and sidewalks in many portions of the city. The progress made in each of these lines has been progressive and most satisfactory. The city has now twenty-five miles of sewers, and the new water-works, nearly completed, will furnish a daily supply of thirty million gallons.

"But of more interest than a mere statement of what has been done in the way of sanitary improvement is a comparison of the results following these improvements. This can be stated in very few words:

"In 1877 Nashville occupied an area of scant three miles, with a population of 27,000, and a death-rate of 34.55 per 1,000 yearly. Now it has an area of 4,021 acres, or six and one-third square miles, with a population of 68,531, and a death-rate of 15.31.

"As Dr. Lindsley justly says, this is progress. It is true that Nashville is favored by its position, and it would be a disgrace were it not a healthy city; but that should be no cause for discouragement for other less favored localities. Even the city of Mexico, built as it is almost in a swamp, is destined, without doubt, to become one of the healthiest cities in the world when the huge sanitary work now in course of construction is completed. Nashville was not a healthy city before Dr. Lindsley and his associates took hold of it, and it is now what they, and others inspired by their zeal and enthusiasm, have made it; and there is no valid reason why every other city and town in the country should not be improved in the same way, if only the right man can be found to undertake the task. They certainly ought to be urged at least to try, after reading what Nashville has accomplished quietly and as a result of patient effort."

SIR WILLIAM GULL.

The English newspapers are unusually rich in gossip regarding the late Sir William Gull. Among these the *Pall Mall Gazette* tries its more than "'prentice hand" at an analysis of the causes of his success. It credits him with being "one of the ablest, most original and striking personalities which a somewhat conventional profession has produced in this generation. Everything about him was picturesque; his humble origin as son of a village trader; his Napoleonic cast of face and feature; his brilliant conversation, teeming with epigrams, paradoxes and quotations; his extreme simplicity of life at home, and his influence and reputation at court and in "society," combined to make him one of the most notable and enigmatical personages of the day." This much-read Gazette alludes to his career as beginning with a chance introduction as a boy-guide to the resident governor of Guy's Hospital, his subsequent installation in the Blue-Coat School, and then his drudgery at the gallipots of Guy's, in all of which relations he conducted

himself with a most "sagacious profundity of manner." It pictures him as an orator dealing in paradoxes, a lecturer from whom a lucid diagnosis was always to be expected, a nihilist in therapeutics, the friend of the scientist, and the idol of all the duchesses. Our authority tells how he was wont to refresh his memory with notes of former consultations before the patient was ushered into his presence, and then dumbfounded him with a "superhuman retentiveness of memory" and "an intense personal interest in the case." Yet, with all these jugleries, Sir William was a conscientious student, devoted to his duties, and of Spartan simplicity in his habits of life. The added accomplishments of the courtier and diplomat, the advantages of a "manly and massive type of comeliness," a cautious zeal for his reputation, and a certain skill in the arts of pleasing, brought more grist than is usual to the mills of most men. More of Richelieu than a Bismark, he belonged to that type of our race which is destined to succeed anyhow, anywhere, and in any capacity.

BACTERIOLOGICAL STUDY IN VIENNA.

The Vienna correspondent of the *Medical News* writes as follows:

Bacteriological investigation goes on constantly with undiminished vigor, and at last the subject of malaria seems settled. It is taught here that the plasmodium malariæ is the cause, that it enters the blood, taking up its abode in the red corpuscles, and gradually growing therein. At first it is very small, one-fifth the size of the corpuscle, but as it grows it takes up pigment, which is deposited in small granules in its periphery. It grows until it completely fills the corpuscle, and then it divides into a number of daughter cells that repeat the same process, and at the division the pigment granules are set free in the blood, causing the well-known *melanosis malariæ*. There is very little malaria in Vienna, but Dr. Bamberger, Nothnagel's first assistant, told us that in every case they succeeded in finding the plasmodium. The use of quinine diminishes the number of the organisms very markedly, and in case of cure they can no longer be found. They are also more numerous just before the chill, and immediately afterward are hard to find, for then the division has taken place, and the small cells escape observation far more easily. Golgi, an Italian pathologist, has written an excellent monograph on this subject.

EFFECT OF INFLUENZA ON THE MORTALITY OF THE STATE OF NEW YORK DURING JANUARY.

The reports of the New York State Board of Health show that the number of deaths in that State during the month of January was nearly 5,000 greater than the average for this month in the past five years, the mortality being greater by 2,000 than that for July, the most fatal month in the year. The marked increase is due to the occurrence of epidemic influenza, which began in December. While but a few hundred deaths are attributed to this cause directly, its influence on the mortality of other affections was very great.

Acute respiratory diseases are given as the cause of three times as many deaths as the average in January, and phthisis showed an increase of 70 per cent. in mortality, while in nervous, circulatory and digestive diseases the death-rate increased from 37 to 40 per cent. On the other hand, the number of deaths due to zymotic diseases was less by 340 than in January, 1889, and the percentage of deaths of children under five years of age was less by about one-half.

Of the cities in the State, Albany shows the greatest death-rate, 41.12. New York's rate was 34.44, and Brooklyn's 29.72. The largest death-rate in the State was in the town of New Rochelle, Westchester county, namely, 52.—*Boston Medical and Surgical Journal.*

COINCIDENT INTRA- AND EXTRA-UTERINE PREGNANCY.

We are indebted to the Vienna correspondent of the *Medical News* for the report of the following remarkable case:

A few days ago, Dr. Rosthorn, assistant at Professor Chrobak's gynecological clinic, operated on a case of apparent ovarian cyst. Eight weeks before, the woman had been delivered of an eight months' child, normal labor, and had been perfectly well until three weeks previous to the operation. The operation was made in the ordinary way, and the supposed cyst removed. At one portion of it a peculiar cord-like process was attached. Rosthorn examined the other ovary—it was normal—but, while examining it, a small hand slipped out from between the intestines. This was seized, and a full-sized child was removed from the abdomen, and to its umbilicus was attached a cord exactly similar to that found on the cyst. They then looked for the fœtal membranes, and found them very deep and everywhere adherent to the intestines and peritoneum. The child's skin was nearly normal, though slightly macerated. Then the membranous sac was brought up and sewed to the peritoneum, just as the stump is treated in extra-peritoneal amputation of the uterus; the abdominal walls were united, and the sac dusted with salicyl-tannin. The woman rallied, and now, seven days after the operation, is doing very well. The careful examination of the removed cyst showed that the tumor was merely the placenta coiled up where it had been fastened to the left Fallopian tube, and the case now resolves itself as follows: There was an extra-uterine pregnancy, with the fœtus in the left Fallopian tube, and this fœtus was carried beyond term, and died. Throughout the time there were no symptoms from this extra-uterine pregnancy, and an intra-uterine pregnancy went on nearly normally at the same time. It cannot be established, though it is probable, according to the authorities here, that the two children were really twins, and one developed within, the other outside of, the uterus. Thus it stands without a parallel in the history of obstetrics, and the full report by Rosthorn will be looked forward to with great interest.

THE PORTRAIT OF A SURGEON GIVEN TO A CHURCH.

The *London Medical Recorder* states that a grateful patient of Professor Billroth's has made a present to a church, in the neighborhood of Vienna, of a portrait of the distinguished surgeon, delineating him as he appears in his operating-room.

PRACTICAL NOTES.

THE USE OF ALCOHOL IN HOSPITALS.

A very interesting report has been presented to the British Medical Temperance Association by Drs. Morton Moir and Pearce, on the administration of alcohol in hospitals. The committee have drawn up a series of tables full of instructive figures, instituting a comparison between the amount expended under this head in 1863 and in 1888. The remarkable fact is noted that in these twenty-five years there has been, from the returns made by 113 hospitals, an increase of 300 per cent. in the charge for milk and a decrease of 47 per cent. in the charge for alcohol. A second table gives returns from sixty hospitals of which no previous record could be found. On the basis adopted by Dr. Fleetwood Buckle, in his report on 1863, these sixty hospitals showed a decrease of 39 per cent. in the expenditure for alcohol per bed. A third table shows the comparative alcoholic charges per bed in 1863 and 1888 respectively. In seventy-three hospitals there had been an increase of 2,108 beds, and a decrease of total average cost per bed of £78 3s. 5d. Beds have thus increased at the rate of 25 per cent., while the amount expended on alcohol has decreased at the rate of 47 per cent. Only eight of this group of hospitals showed an increase in the quantity of alcohol consumed. In the remaining sixty-five the decrease ranged from 30 to 83 per cent. In the London Fever Hospital, while milk has risen from £150 to £650 per annum, the disbursements for alcohol were at the rate of only 15s. 2d. per bed in 1888, as compared with £3 5s. per bed in 1863. In St. Bartholomew's Hospital the milk bill had gone up from £600 to over £2,000, while the alcohol bill had gone down from £1,446 to to £953. These statistics prove that there has been a gradually increasing rational medical administration of alcohol, the credit of which must be awarded to the medical staffs of the hospitals, a fact which affords yet another proof of the lively interest in the promotion of temperance taken by the medical profession.—*British Medical Journal.*

IODINE AS A REMEDY FOR VOMITING.

M. Darthier (*L' Union Médicale*, Dec. 10) bears testimony to the value of tincture of iodine administered internally for the relief of vomiting, a remedy recommended by the late Prof. Lasegue in the vomiting of pregnancy. The author had observed its use in nineteen cases, eleven of which were tubercular subjects, and found that it is of more value in the vomiting of early phthisis than in that of the later stages of this disease. At the same time he gives instances of advanced cases with obstinate vomiting where the symptom was largely controlled by the drug. Amongst other cases he gives one of bronchial dilatation (subsequently fatal from acute tuberculosis) in a female who for three weeks had regularly vomited after every meal. From the date of commencement of the use of the drug she ceased to vomit, and after a week's treatment, which was not productive of any signs of iodism, was completely cured of the symptom. Apart from phthisical vomiting, M. Darthier finds it useful in alcoholic gastritis, in ulcer of the stomach, and in the vomiting of pregnancy and of chlorosis, instances of which are recorded. He says that the majority of the patients take the iodine with pleasure; it often produces an agreeable sense of warmth in the stomach, lasting from five to twenty minutes. The dose is ten drops dissolved in 125 grams of water, taken in three portions immediately after meals. In a certain number of cases symptoms of iodism are produced, chiefly coryza; but a good many patients do not experience any such inconvenience from it.—*The Lancet.*

ANTISEPTIC TREATMENT OF GASTRO-ENTERITIS.

A writer in the *Revue Générale de Clinique et de Thérapeutique*, January 23, 1890, advises creolin in the treatment of gastro-enteritis, and prescribes it as follows:

℞ Creolin . . . . . 8 minims.
Pulverized sugar . . . . . 75 grains.
Mix, and divide into ten powders, one of which may be given every two or three hours.

Or,

℞ Creolin . . . . . 1 to 2 drops.
Syrup . . . . . 1 ounce.
Peppermint water . . . . . 2 ounces.—*m*

Of this a teaspoonful may be given every one or two hours.

Asepsis of the lower bowel may be secured by enemata of 1 oz. of sodium benzoate in one quart of water; boric acid 1 to 5 drachms, sodium salicylate in the same quantities, or resorcin 7 grs. in a quart of water. Enemata of equal parts of lime-water and distilled water may be used for the same purpose.—*Medical News.*

ATROPINE IN ENURESIS.

In the *Archives of Pedriatics* for October, 1889, Dr. William Perry Watson reports thirty cases of incontinence of urine occurring in children from 15 months to 3 years of age, in nearly all of which cure was produced by the use of sulphate of atropine. The solution was composed of one grain of atropine to an ounce of distilled water, and one drop of this solution was given for each year of the age of the child. It was given at 4 and 7 o'clock in the evening. Some of these cases occurred in Dr. Watson's private practice, and others in the public institutions which were under his care.—*Therapeutic Gazette*, December 16, 1889.

SOCIETY PROCEEDINGS.

New York Academy of Medicine.

SECTION ON ORTHOPÆDIC SURGERY.

Stated Meeting, February 21, 1890.

V. P. GIBNEY, M.D., CHAIRMAN.

DR. FRANK HARTLEY presented a case of

DOUBLE CONGENITAL TALIPES EQUINO-VARUS.

The patient, a male, 20 years of age, and a cigarmaker, was admitted to the Roosevelt Hospital on May 27, 1889. This deformity, which has been present since birth, increased between the sixth and twelfth years, and although it has not caused much pain, he walked with a curious shuffle of the foot from side to side. He was very desirous of an operation. Examination showed that there was about two-thirds of the normal motion of the ankle-joint, and that the neck of the astragalus was twisted so as to look directly inwards, and the os calcis was placed obliquely to the tibia. He had the peculiar pallor of the skin and mucous membranes common to cigarmakers. Heart, lungs and kidneys were normal.

On June 5, a cuneiform osteotomy was performed over the greatest convexity of the left foot. The wedge of bone removed consisted of portions of the tibia and fibula, the whole of the astragalus, and enough of the cuboid, scaphoid and os calcis to allow of a reduction of the deformity. The foot was placed at once in proper position. Healing was normal, and on July 25 a similar osteotomy was done upon the other foot. The wedge removed consisted, as in the other foot, of a portion of the tibia and fibula, the whole of the astragalus and scaphoid, and portions of the os calcis and cuboid. On August 24, union in the left foot was good, and fairly good in the right foot. By the middle of October, he was allowed to walk about the wards, and on November 29 he was discharged from the hospital, and has since been under observation in the out-patient department. The muscles are gaining rapidly in size and strength under daily applications of electricity. Crutches are only used for long walks, and judging from the progress so far, these can be discarded in a month or two, and possibly in four months, even the retentive apparatus which he now wears can be removed. Dr. Hartley did not consider this deformity the result of an arrest of development, but of pressure effects within the uterus. He believed these cases of secondary congenital club-foot could usually be cured by mechanical measures, although the severest forms require, as in the present case, an operation.

DR. JOHN RIDLON presented a male patient, 18 years of age, who came under observation last April for a deformity of both feet which had made walking difficult and painful for the previous two years. There was cavus and equinus, and on walking, varus of both feet. There were no reflexes on "point pressure." On April 4, 1889, Dr. George S. Huntington divided the plantar tissues of the right foot by open incision, and having forced the foot into proper position by Thomas' wrench, divided the tendo Achillis subcutaneously. On May 8, a similar operation was done upon the left foot, and was followed by primary union. The patient is now able to walk well and without discomfort.

Dr. Ridlon also presented a boy of 13 years, who first came under his observation on May 12, 1889, having begun to limp about three months previous. The foot was found to be held rigid in the position of valgus by contraction of the extensor and peroneal muscles; but when the patient was etherized with the intention of dividing these tendons, the foot could be easily placed in a position of equino-varus. It was retained in this position by plaster of Paris for about two months. There was no pain following this manipulation and replacement of the foot, and when the plaster was removed, motion at the ankle and tarsal joints was normal, and the limp had disappeared. On October 4, he was found to have relapsed into his former condition. The foot was placed in the best possible position, and has since then been retained in this position by plaster of Paris.

DR. V. P. GIBNEY presented a lady 25 years of age, who had been referred to him in December, 1887. She walked on the outer borders of the feet, where large callosities served as a base of support. The soles of the feet looked backward and upward, and her gait was especially reel-like. There were extensive cicatrices over the tendo Achillis, and it was quite impossible to correct the deformity by manual force.

On December 26, 1887, a cuneiform osteotomy after the method of Dr. Charles T. Poore was performed; but after extensive section of the bones and free division of the deltoid ligament, and of a few resisting points of the plantar fascia, it was not possible to place the foot in proper position. A free lateral incision was then made and muscles and tendons divided after the manner of Dr. Phelps. After some further difficulty, a good position was secured, and the foot was placed in a Thomas club-foot shoe, over which plaster of Paris was applied. The dressings were removed on the following day on account of free oozing, and by December 30, it was found absolutely necessary to put her in charge of a trained nurse, and from this time until February 16 she suffered from septicæmia. At the end of this period the wounds were healing rapidly, and the foot was in excellent position. On February 22, having secured her admission to the Hospital for Ruptured and

Crippled, a similar cuneiform osteotomy was done upon the other foot, which was then brought into good position and dressed antiseptically, and covered with a plaster of Paris bandage. Nearly all the wound healed by first intention, and recovery was uninterrupted, although retarded by the presence of corns and tender callosities. She gets on very well now, although the gait at present is very much modified by the condition of these corns.

DR. W. H. BERG took an exception to Dr. Hartley's statement that the deformity in his patient was probably caused by too little space in the uterus; he thought this theory had been pretty generally abandoned.

DR. HARTLEY replied that he did not think this was the case, as in Bessel-Hagan's book on the "Etiology and Pathogenesis of Club-Foot." considerable space was given to this very thing.

DR. N. M. SHAFFER had found that a certain number of cases of adult club-foot yielded to mechanical measures; while in many of those which were only amenable to operative treatment, the patient's condition untreated was often as good as that obtained by operation. One great obstacle to the treatment of these cases is the cicatrices from previous operations.

DR. H. L. TAYLOR said that a new instrument just perfected by Dr. Bradford, of Boston, offered another alternative to methods already in use. By it, the surgeon was able to obtain a very perfect grasp of the foot and thus twist it into position.

DR. SAMUEL KETCH remarked that Dr. Ridlon's second case showed decided reflex spasm and pain on rotation of the foot, and he considered the case one of valgus, symptomatic of some bone lesion. The rapid relapse seemed to favor the view of the osteitic origin of the trouble.

DR. BERG thought the bone lesion was probably at the point where the outer malleolus impinges upon the astragalus. There was certainly no muscular trouble present.

DR. SHAFFER felt sure there was some bone irritation present, and as it was more resistant to adduction than to the other movements, when the astragalus and scaphoid were crowded together, he thought the lesion was probably located at the articulation between the astragalus and scaphoid, but not involving the ankle-joint itself. He had had a similar experience in regard to the sudden disappearance of the deformity after etherization; but he had not suspected a tubercular osteitis, because he had never seen such cases go on to suppuration. They are more like inflammatory flat-foot, running a long course, and ultimately terminating, not in anchylosis, but in recovery with pretty good function.

DR. A. B. JUDSON was likewise of the opinion that the case was one of articular osteitis, and its duration would favor this view. The circulation of the limb being normal, eliminated the presence of a nervous lesion.

DR. RIDLON, in closing the discussion on this case, said he could not conceive it possible that a tubercular osteitis could be subjected to such vigorous manipulation without being followed by some evil consequences. When the spasm has existed, the patient has always complained of pain on attempted motion, but he walks and jumps around like other boys. Is it possible that an osteitis can exist for a year, as this has done, under such treatment, without an aggravation of the disease?

DR. W. R. TOWNSEND presented for Dr. Gibney the left knee of

A CASE OF DOUBLE HIP-JOINT DISEASE,

Which had been removed post-mortem. The joint had been immobilized in a plaster of Paris splint for eighteen months. There was no disease at the knee when the first plaster had been applied, and the long confinement of the joint showed that no gross changes had occurred in the bones or cartilages. The synovial membrane was removed and found apparently healthy, and the joint contained a small amount of synovial fluid when first opened. The motions were limited to an arc of about fifteen degrees, and yet after the ligamentum patellæ was divided, extension and flexion could be made to the full limit. The lateral ligament did not seem contracted.

DR. BERG said that the specimen only showed that the joint surfaces were normal, but it did not show that the soft parts had not been affected by prolonged immobilization. The specimen was of medico-legal interest, because it was sometimes claimed that real and permanent disability had resulted from such prolonged immobilization.

DR. SHAFFER feared the results of prolonged immobilization, for, in an experience with seven cases of ununited fracture of the femur, it had resulted in effusion into the knee-joint. He had employed in these cases an apparatus which made traction upon the thigh, but which was not applied below the knee.

DR. RIDLON thought we should distinguish between the immobilization of cases of fracture adjacent to joints, and of healthy joints which were positively free from any injury, for the results in the two classes of cases were widely different. The traction apparatus employed by Dr. Shaffer might have produced constriction of the limb, and so led indirectly to effusion into the joint.

DR. JUDSON said anchylosis was the result of inflammation, and immobilization of an inflamed joint, or the arrest of function was a primary antiplogistic.

DR. HARTLEY said that in fractures in the lower part of the thigh, where there was a possi-

bility of hæmorrhage into the joint, passive motion should be begun as soon as possible; but in fractures high up, with very little possibility of injury to the joint, longer immobilization was permissible. It is often very difficult to estimate the amount of injury to a joint at the time of a fracture or other severe injury.

DR. TAYLOR said that he had never hesitated to immobilize a healthy joint for any length of time that might be necessary, and he had never seen any bad results from it.

DR. RIDLON described an easy and inexpensive method of producing the flat-foot plate used by Dr. Whitman. The usual method is to have an iron foot made, on which the plates are hammered out. Recalling the copper-plated plaster casts recently exhibited to the Section by Dr. A. M. Phelps, he had taken a plaster of Paris cast to Lovejoy of 45 Rose Street, who had coated it with a solution of silver, and then, by means of electro-deposition, had obtained a copper plate of the desired thickness, and at a cost of only $1.50.

The copper plate so prepared was exhibited.

DOMESTIC CORRESPONDENCE.

Death of the First Vice-President of the American Medical Association.

To the Editor:—As Secretary of the University Medical College of Kansas City I am instructed to inform you of the death of its President and Professor of Surgery, John W. Jackson, M.D., who was the first Vice-President of the American Medical Association; he died on March 13 of embolic pneumonia resulting from pyæmia (probably), at the age of 58. He was the chief surgeon of the Wabash railway system, and last year was President of the National Association of Railway Surgeons. EMORY LAMPHEAR, M.D.

Kansas City, Mo., March 13, 1890.

NECROLOGY.

John Jacob Crane, M.D.

DR. JOHN JACOB CRANE, who died in New Haven, Conn., was for many years a prominent physician of New York City, having been for more than a quarter of a century one of the visiting surgeons to Bellevue Hospital. He was a graduate of Princeton College in 1840, and of the College of Physicians and Surgeons, New York, four years later. About five years ago he retired from active practice and made his home at New Haven. The deceased was in his seventieth year at the time of his fatal illness, which terminated March 4.

MISCELLANY.

ARRANGEMENTS FOR VISITING MAMMOTH CAVE.—The Louisville & Nashville R. R. Co. offer to all who may desire to visit the Mammoth Cave this privilege—"All who may attend the meeting can stop over at Mammoth Cave Junction going to Nashville, by notifying our conductor between Louisville and the Junction of their intention to do this; he will then permit them to retain their tickets for transportation on another train from the Junction to Nashville. Before leaving Mammoth Cave, the tickets should be presented to our agent at the Mammoth Cave Hotel, who will endorse them, making them good for passage to Nashville even should the limit have expired. If it is not convenient for all to visit the Cave upon the south-bound trip, we can arrange for such visit when returning from Nashville, but this will not be arranged until the Secretary of the Association notifies the Company that some in attendance wish to make this side trip after leaving Nashville."

THE TENTH INTERNATIONAL MEDICAL CONGRESS.—It is announced that the following Scotch Committee has been appointed to coöperate with the President and the General Secretary: Mr. Joseph Bell, Mr. Geo. A. Berry, Mr. John Duncan, Prof. T. R. Fraser, Prof. W. T. Gairdner, Dr. G. A. Gibson, Dr. P. M. Bride, Sir George H. B. Macleod, Dr. Peel Ritchie, Prof. A. A. Simpson, Prof. Grainger Stewart, Dr. J. B. Tuke and Sir William Turner.

FOR THE INFORMATION OF PERSONS DESIRING TO ENTER THE MEDICAL CORPS OF THE U. S. NAVY.—A candidate for examination and appointment in the Medical Corps of the Navy must be between 21 and 26 years of age, and must apply to the Honorable Secretary of the Navy for permission to appear before the Naval Medical Examining Board (now in session at the U. S. Naval Hospital, Brooklyn, N. Y.)

The application must be in the handwriting of the applicant, stating age and place of birth, also the place and State of which he is a permanent resident, and must be accompanied by letters or certificates from persons of repute, testifying, from personal knowledge, to his good habits and moral character, and that he is a citizen of the United States.

FORM OF APPLICATION.

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To the Honorable Secretary of the Navy, Navy Department, Washington, D. C.:

SIR:—I request permission to be examined for an appointment as Assistant Surgeon in the United States Navy.

I was born at——, and was —— years of age on the—— day of ——, 189—, and am a citizen of the United States, residing in ——, county of ——, in the State of ——.

I enclose herewith certificates as to moral character, habits and citizenship.

Very respectfully, ————————

If, in reply to the above, the candidate receive a permit, he will notify the President of the Board of the fact and request him to appoint a time for his examination.

Candidates will be expected to present to the Board testimonials of educational and professional fitness.

The Board is required, under oath, to report on the physical, mental, moral and professional qualifications of the candidate; so that the examinations are necessarily rigid and comprehensive, though simple and practical, and not beyond the attainments of any well educated physician.

A successful candidate, upon the completion of his examination, will be notified by the President of the Board that he has been found qualified.

An applicant found "not qualified" may be allowed a second examination after one year, but not a third.

No allowance will be made for the expenses of persons

undergoing examination, which, if uninterrupted, is usually completed within a week.

Appointments will be made as vacancies occur, and in the order of merit reported by the Board, but a qualified candidate not appointed within a year must be reëxamined.

The officers of the Medical Staff of the Navy are as follows: Medical Directors, Medical Inspectors, Surgeons, Passed Assistant Surgeons and Assistant Surgeons.

Vacancies in these grades (by death, or retirement at the age of 62 years) are filled in the order of seniority, and for each step of promotion a physical and professional examination is required by law.

The pay of an Assistant Surgeon in the Navy is $1,000 per annum "on leave or waiting orders," $1,400 "on shore duty," $1,700 "at sea," and, when at sea, one ration at 30 cents per diem in addition.

Eight cents a mile is the allowance when traveling under orders.

ORDER OF EXAMINATION.

1. Physical. 2. Written. 3. Oral. 4. Clinical. 5. Practical.

The Physical Examination will be very thorough, and the candidate will be required to certify, under oath, that he is free from any mental, physical or constitutional defects, hereditary taint, or disability of any kind that would be liable to interfere with the efficient performance of duty.

Written Examination.—The candidate will be required to address a letter to the Board of Examiners, stating concisely—

1. The date and place of his birth; the school, institution or college at which he received his general education; the several branches studied, including his knowledge of general literature, and of the ancient and modern languages; the exact title of the medical school or schools at which he received instruction, and, if an Alumnus, the date of his graduation; the name and place of residence of his preceptor and the time when he commenced the study of medicine; also, the titles of the text-books studied or read on Chemistry, Anatomy, Physiology, Histology, Materia Medica, Pharmacy, Therapeutics, Theory and Practice of Medicine, Principles and Practice of Surgery, Minor Surgery, or Mechanical Therapeutics, Medical Jurisprudence, Toxicology, Obstetrics, Hygiene, Biology and Physics.

2. The opportunities he has had of engaging in the practice of medicine, surgery and obstetrics, or of receiving clinical instruction; or whether he has or has not been a resident physician or interne in a civil or military hospital.

3. The number of subjects or parts of subjects he has dissected; what opportunity he has had to become familiar with minor surgery and bandaging, chemical and pharmaceutical manipulations, and the physical properties of drugs.

The candidate will append to this letter his name in full, post-office address, and his local address at the date of the examination.

A thesis or short essay must next be written (without reference to notes or books) upon some professional or scientific subject indicated by the Board.

Written answers will then be required to twelve or more questions, propounded by the Board, on the following subjects:

Anatomy, Histology, Physiology, Surgery, Theory and Practice of Medicine, Obstetrics, Materia Medica, Chemistry, Hygiene, Medical Jurisprudence, Toxicology and Physics.

Oral Examination.—The candidate will be examined orally upon his literary and scientific acquirements, including general history, natural science and English literature, and professionally upon Anatomy (general, special and surgical), Histology, Physiology, Theory and Practice of Medicine, Principles and Practice of Surgery, Chemistry, Legal Medicine, Toxicology, Materia Medica, Therapeutics, Pharmacy, Obstetrics and Diseases of Women and Children, Hygiene, Microscopy and Physics.

Candidates possessing special knowledge of the higher Mathematics, Astronomy, Geology, Botany, Zoology, Literature, Art and Ancient and Modern Languages, will be given full credit for their proficiency.

The Clinical Examination of patients will be made by the candidate at a Naval Hospital, and will include the use of the Microscope, Thermometer, Laryngoscope, Ophthalmoscope and other aids to physical diagnosis; after which he will be required to submit a written clinical report on one or more medical or surgical cases.

The Practical Examination will comprise surgical operation on the cadaver, the application of splints, bandages and surgical dressings, the use of the microscope (for clinical purposes, and the recognition of pathological or other specimens), and chemical and pharmaceutical manipulations.

A candidate may withdraw at any period of the examination, with the consent of the Board, and may at a future time present himself for re-examination.

The Board may conclude the examination—written, oral or practical—at any time, and may deviate from this general plan in such manner as it may deem best to insure the interests of the naval service.

WILLIAM C. WHITNEY,
Secretary of the Navy.

LETTERS RECEIVED.

Dr. J. W. Holland, Philadelphia; Upjohn Pill & Granule Co., Kalamazoo, Mich.; Pope Mfg. Co., Boston; W. J. Dornan, Philadelphia; W. T. Hannaford, London, Eng.; Dr. L. W. Baker, Baldwinsville, Mass.; J. Walter Thompson, New York; Dr. T. W. Briggs, Nashville, Tenn.; Dr. E. P. Brewer, Norwich, Conn.; Chas. D. Pearson, Indianapolis, Ind.; Dr. H. K. Teft, Topeka, Kan.; Dr. Jno. H. Pope, Lithia Springs, Ga.; Dr. Henry B. Baker, Lansing, Mich.; L. Bruck, Sydney, N. S. W.; Reed & Carnrick, New York; Dr. Kent K. Wheelock, Fort Wayne, Ind.; Dr. T. L. Wright, Bellefontaine, O.; Gustav E. Stechert, New York; Dr. J. G. McDougal, New Lexington, O.; Dr. J. H. Yarnall, Washington; D. M. McCreary, Dayton, O.; Dr. T. A. Ashby, Baltimore, Md.; Dr. J. W. Wright, Columbus, O.; A. A. Marks, New York; Dr. P. H. Hambaugh, Springfield, Ill.; The Gazette, Janesville, Wis.; Dr. C. N. Fowler, Youngstown, O.; Dr. A. W. Nelson, New London, Conn.; Leonard Scott Publication Co., New York; Dr. W. C. Bane, Pittsburgh, Pa.; John E. Ruebsam, Washington; Dr. W. H. Wathen, Louisville, Ky.; Elice Bros., Galena, Ill.; Dr. R. J. Dunglison, Philadelphia; Dr. Wm. Barton Hopkins, Philadelphia; Nashville, Chattanooga & St. Louis R'y, Nashville, Tenn.; W. D. Kline, Nashville, Tenn.; E. J. Knowlton, Ann Arbor, Mich.; Dr. W. P. Hart, Hope, Ark.; Dr. M. L. Mayo, Huntington, W. Va.; W. T. Arnold, Reading, Pa.; Dr. J. M. Latta, Millerton, Kan.; B. F. Hart, Marietta, O.; Dr. D. K. Dickinson, Lead City, Dak.; Dr. D. S. Thurston, Dallas, Tex.; J. A. Flexner, Louisville, Ky.; Dr. S. H. Gump, Bedford, Pa.; Dr. Cunningham, Cambridgeport, Mass.; Dr. H. D. Wyman, Morenci, Mich.; Dr. A. B. Gardner, Denison, Tex.; Dr. T. J. Weed, Cleveland, O.; A. Hoeffer, Chicago; Netherlands American Steam Navigation Company, New York; Dr. S. E. Burroughs, Allison, Ia.; Dr. D. T. Brown, Michigan City, Ind.; The Maltine Mfg. Co., New York; Dr. E. Harned, Custer, Ky.; Dr. Wm. H. Lyford, Port Byron, Ill.; Geo. P. Rowell & Co., New York; Sharp & Dohme, Baltimore, Md.; Gladstone Lamp Co., New York; Dr. Edward S. Woods, Boston; B. Glick, Kansas City, Mo.; H. H. Johnson, Atlanta, Ga.; Dr. W. R. Fringer, Pana, Ill.; Parke, Davis & Co., Detroit, Mich.; Dr. Fairbank Allport, Minneapolis, Minn.; Thos. Cook & Co., New York; Thos. Leeming & Co., New York; Dr. H. W. Shove, Woodbury, Conn.; Dr. E. M. Patton, Quincy, Ill.; Dr. E. H. Cooper, Galesburg, Ill.